

Certain Mounds and Village Sites in Ohio

Vol. 2 Part 3

Exploration of the Tremper Mound

By WILLIAM C. MILLS, M. Sc.

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AT WORK IN THE TREMPER MOUND.

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EXPLORATION OF THE TREMPER MOUND.

WILLIAM C. MILLS.

The Tremper mound is situated five miles north of the city of Portsmouth, on the west side of the Scioto river, in Rush township, Scioto county, Ohio. The land upon which it is located is a part of the estate of Senator William D. Tremper, Portsmouth, which consists of more than seven hundred acres of the rich bottom lands at the confluence of the Pond creek and Scioto valleys.

The immediate site of the mound is a level plateau, about seventy feet above low-water mark of the Scioto river. Looking westward from the summit of the mound upon the narrow valley of Pond creek, threading its way between rugged hills upward of five hundred feet in height, one is impressed with the powerful forces employed by nature in carving out this narrow water course, enabling the stream, fed by innumerable springs, to carry its surplus of pure cool water to its junction with the Scioto river. During glacial times, Pond creek doubtless was an outlet for the waters from melting glaciers, pushing down from the northwest, as well as for that from icebergs incident to the glacial period. These icebergs at times doubtless resulted in damming the flow of the torrent, and an extremely interesting illustration of this retarding influence is to be seen just a few hundred yards west of the mound. At the point referred to a most impressive natural amphitheatre, semi-circular in form, one thousand feet long and fifty feet or more in height, marks the site along the east side of the valley of the stream where the glacial flood, breaking the restraint of the ice, has carved its history.

At the intersection of the Scioto and Pond creek valleys, and just a short distance southwest from the mound, is a fine spring

of water. This spring doubtless played an important part in the life of the builders of the Tremper mound and other aboriginal dwellers, just as it has done in supplying a never-failing source of pure cold water to the early white settlers of that section, to their descendants, and to all who at the present time pass along the highway where it invitingly awaits the thirsty traveler.

At the site of this spring, in an early day, was located the Buckhorn tannery, where General U. S. Grant is said to have worked for a short time. According to Mr. Frank Johnson, who was employed as a workman at the time of the exploration of the mound, his father, Lewis H. Johnson, was foreman of the tannery when General Grant was employed therein.

THE TOPOGRAPHY OF THE COUNTY.

Scioto county, for the most part, is broken and hilly. The Scioto river flows directly through the county, from north to south, to its junction with the Ohio river at Portsmouth. The mouth of the Scioto is ninety feet below the level of Lake Erie, while its waters at Columbus are more than three hundred feet above the low-water mark of the Ohio, showing that the average fall per mile between Columbus and Portsmouth is more than three feet. The valley of the Scioto is the broadest and perhaps the most fertile of any of the rivers flowing into the Ohio.

The hills and ridges of Scioto county are simply the remnants of what once were continuous rock strata, now chiseled and sculptured by the tireless action of water and other natural agencies. Man has furthered the transformation by denuding the hills of their tangled forests, so that on every hand instead of woodland, are seen cultivated fields and pasture lands.

GEOLOGY.

From an archeological viewpoint, Scioto county presents several interesting features as regards geological formations. Among these are the outcropping, along the east bank of the Scioto river, of the Ohio pipestone (fire clay), and on the west bank of the river of the Ohio black shale, the latter underlying the whole county.

The Ohio pipestone deposit extends over the eastern part of the county, beginning at the Scioto river, where the outcrop lies high up on the hills and gradually dips to the southeast, and continuing until in the eastern part of the county the outcrop lies low down near the base of the hills. The pipestone stratum varies in thickness from one and one-half feet to eleven feet, the average being three and one-half or four feet. In color it varies greatly, ranging from almost white, through all the various shades of color, to dark red. The dark red variety is scarcely distinguishable from the Minnesota pipestone. The Ohio pipestone was extensively used by prehistoric man in this region for making tobacco pipes. Of the one hundred and forty-five pipes taken from the Tremper mound, all but four were made from that material, the exceptions being three of coral limestone and one of fine-grained sandstone.

The Ohio black shale is the lowest stratum exposed in the county. It outcrops along the west bank of the Scioto river. In color it is very black, is fine grained, high in carbon, and crumbles after long exposure. The shale was used by prehistoric man in making gorgets and other ornaments found in the mound.

HISTORICAL DATA ON THE MOUND.

The Tremper mound has been in the possession of the Tremper family for many years. The base of the mound never had been disturbed, as the owners were unwilling that the mound should be examined, except under the auspices of the Ohio State Archaeological and Historical Society, and for the benefit of the state. Several years ago, Senator Tremper's sons, Richard and William Tremper, made a superficial examination by digging into the top of the mound at several points, finding a number of skeletons buried not more than one foot below the surface. These burials doubtless were of an intrusive nature, as was shown by the finding of five additional and entirely similar burials in the exploration of the mound, but which differ greatly both in mortuary customs and artifacts from those of the real builders of the mound.

The first published account of the Tremper mound is found in "Ancient Monuments of the Mississippi Valley", by Squier

and Davis, 1846, page 83, with a drawing of the mound, shown as plate 29, after the survey of Charles Whittlesey. The work is designated as an "Ancient Work and Animal Effigy, Scioto county, Ohio". Mr. Whittlesey's drawing is herewith reproduced, as Fig. 1, for comparison with the drawing, Fig. 2, made by Mr. George H. Miehl, surveyor for the Society's field explorations. In their description of the Tremper mound Squier & Davis say:

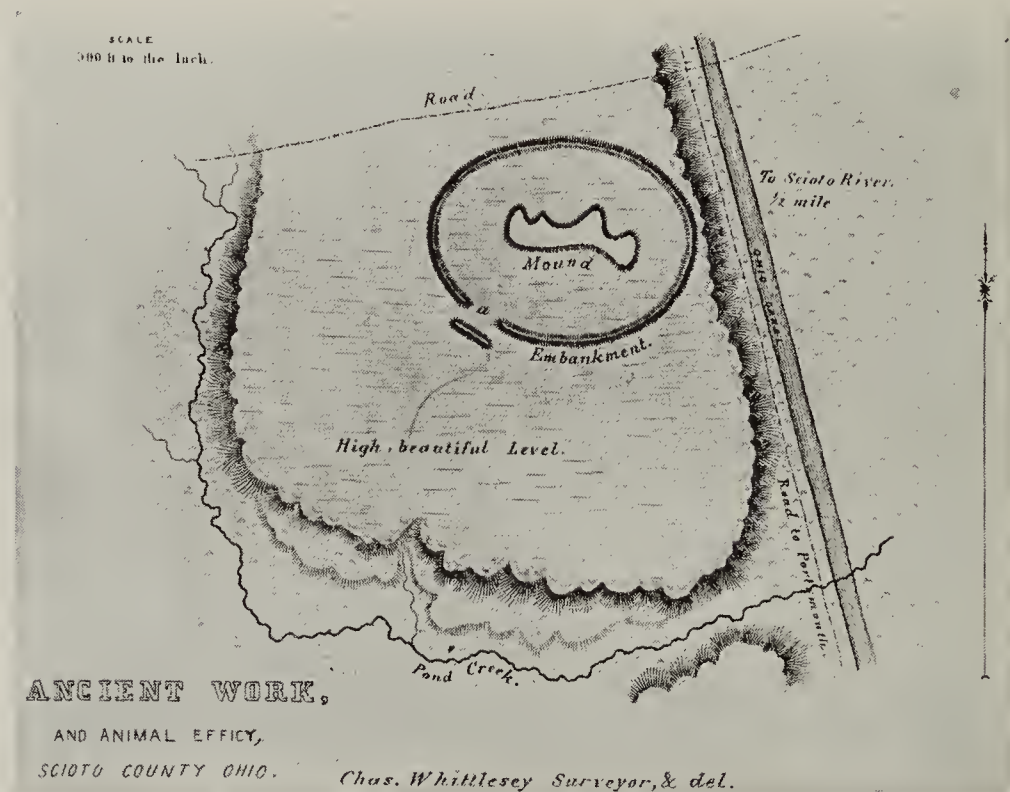


FIG. 1. Ancient Work and Animal Effigy, After Whittlesey.

DESCRIPTION BY SQUIER & DAVIS.

"This singular work is situated five miles north of Portsmouth, Scioto county, Ohio, on the west bank of the Scioto river. It is not a true ellipse, but approaches very near it. Its longest axis is four hundred and eighty feet, its conjugate diameter four hundred and seven feet. It is built upon a high and beautiful level, elevated some sixty or seventy feet above the Scioto river, which flows about half a mile to the eastward.

The embankment is unaccompanied by a ditch and is about three feet in height, by thirty feet base. It has, as shown in the plan, a single gateway, ninety feet wide, opening to the south-east, which is covered by a long exterior mound, of about the same height with the embankment of the enclosure.

"Within this enclosure is a large irregular mound, which from its resemblance to the animal-shaped mounds of Wisconsin, of which notice will be taken in another place, constitutes by far the most interesting feature of the work. It is of the form and relative size indicated in the plan, and is composed of loose broken sandstone and earth, based upon dislocated and broken sand-rock. It is from one to eight feet high, being lowest at the eastern end or head, and at the projecting points. It is probably of the same design with those of Wisconsin, already alluded to, which occur in great numbers and in long and apparently dependent ranges. None of those, however, so far as known, are found enclosed after the manner of the one here presented. No explanation of the probable design of this work will be attempted here: it is impossible, however, to disconnect it from the superstitions of the ancient people. An interesting fact is communicated by F. Cleveland, Esq., of Portsmouth, who assisted Mr. Whittlesey in making the survey of this work, and who was engineer on the Ohio canal when it was in progress; viz., that the workmen engaged in excavating found large quantities of mica, in sheets, in the immediate vicinity of this enclosure. This mineral is found in great abundance in the mounds and in the neighborhood of these ancient works."

Mr. Gerard Fowke in his "Archeological History of Ohio," ventures to call the Tremper mound "The Tapir", but states that "Ohio possesses several of these effigies, only two of which really resemble anything," referring to the great Serpent mound in Adams county and the Opossum mound in Licking county.

THE MOUND FROM AN EXTERNAL VIEWPOINT.

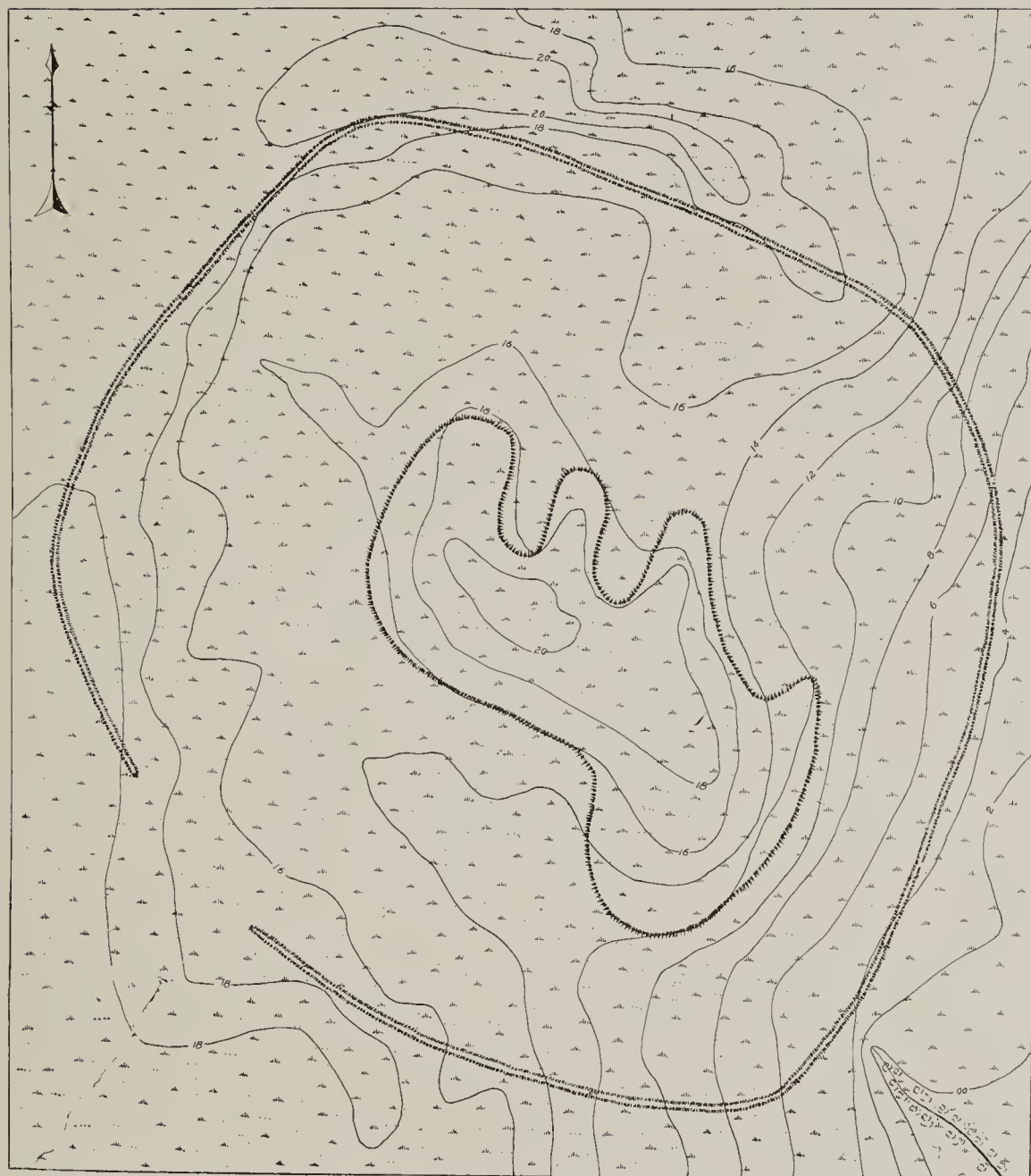
The opinion of Squier & Davis, as expressed in the second paragraph of the above quotation, to the effect that the Tremper mound probably was an effigy mound of the same design as

those of Wisconsin, was perhaps a natural conclusion, in view of their observations and of what up to that time was known of the mounds and their purpose.

As the result of several visits to the Tremper mound within the past dozen years for the purpose of examining the general form and surroundings of the work, I had fully decided that the mound was not intended as an effigy of an elephant or of any other animal, but was very likely a burial mound belonging to the Hopewell culture. In many respects it resembled the Seip mound,* along Paint creek, in Ross county, its irregular form apparently being due to additions made to the great charnel-house. This opinion is borne out by our present examination, which shows that the Tremper mound was not intended as an effigy of any kind, but that its shape was entirely the result of additions to the main site or structure, made and completed as needed.

According to Squier & Davis, who published the survey made by Charles Whittlesey, which is shown in Fig. 1, the earthwork is an almost perfect ellipse, with an extra wall closing the opening to the south-west. By referring to the topographic map made by our survey, Fig. 2, it will be seen that the early surveyors very likely used no instruments in making these surveys. It would seem that they made certain measurements from the mound center, and drew on paper what appeared to them to be the general form of the earthwork. It is true that one standing on the mound and viewing the earthwork from that viewpoint, receives the impression of an almost perfect ellipse; but the present survey found the earthwork to be a round-cornered rectangle, practically four hundred and twenty feet by four hundred and forty feet in size. Special inquiry among old residents concerning a possible embankment in front of the entrance to the earthwork, elicited the information that to their knowledge no earth had been hauled away, and our survey could find no trace of there ever having been a wall in front of this opening.

* Explorations of the Seip mound found in "Certain Mounds and Village Sites in Ohio." Vol. 2, Part 1. Mills, 1909.



TOPOGRAPHIC MAP
OF
TREMPER MOUND

FIG. 2.

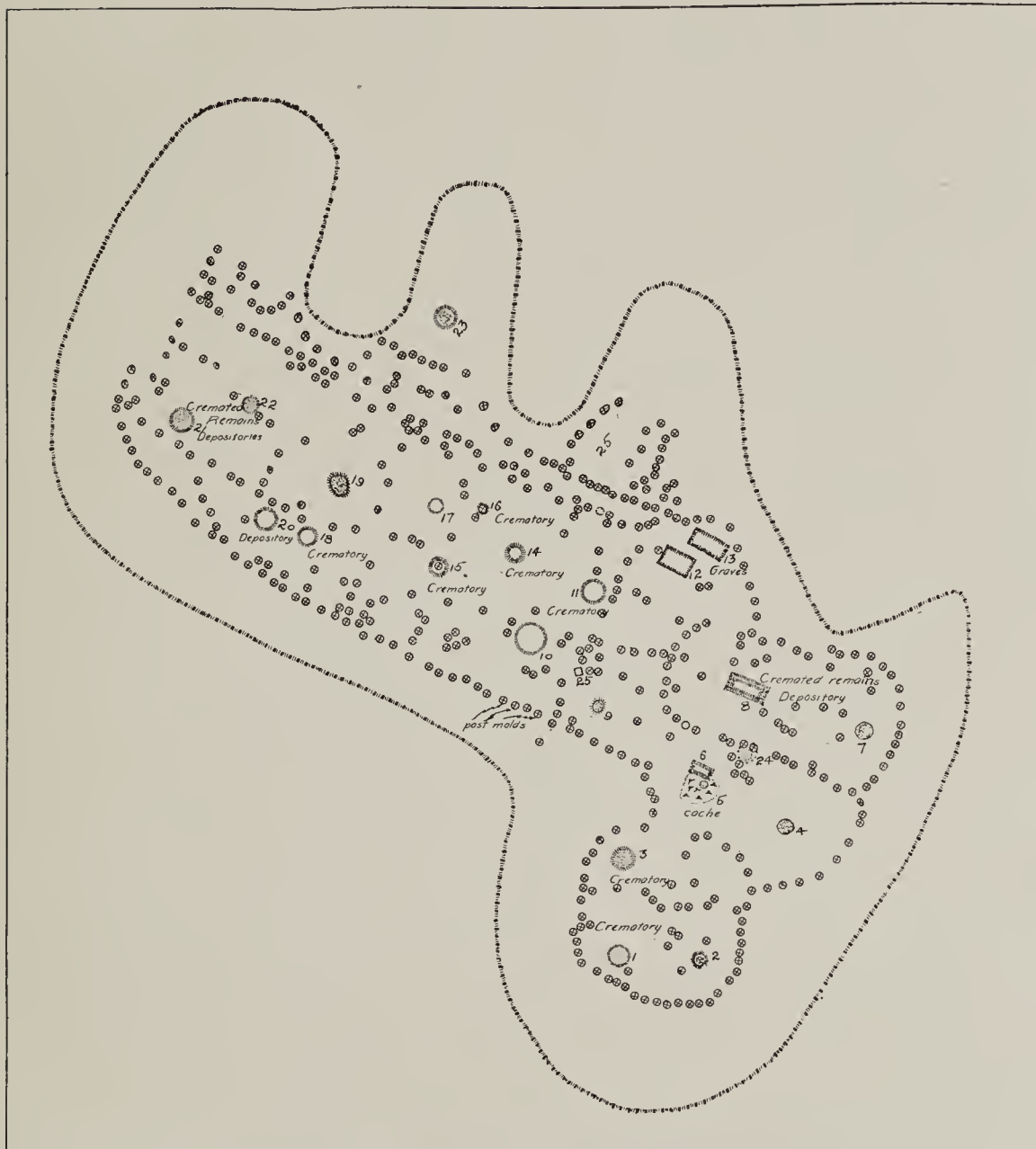
THE EXPLORATION OF THE MOUND.

On the 21st of July, 1915, was begun the exploration of the Tremper mound. The examination had as its purpose the exposing to view of the entire site of the mound, the recording of all finds, and the photographing of all important features.

The surveyor of the party, Mr. George H. Miehl, made a complete survey of the mound and the earthwork that surrounds it before excavating was begun, and from his notes was prepared the topographic map shown in Fig. 2. He then established secondary traverse points upon and around the mound, and from these located, by the aid of the instrument, the various finds in the mound as they were unearthed, and from his notes prepared the map, Fig. 3, showing the plan of the floor of the mound. Mr. Miehl also prepared a plan showing a cross-section of the mound, upon which was recorded the depths of finds therein, as well as the depth of the soil composing the mound and of graves found below its base. The cross-section is shown in Fig. 4.

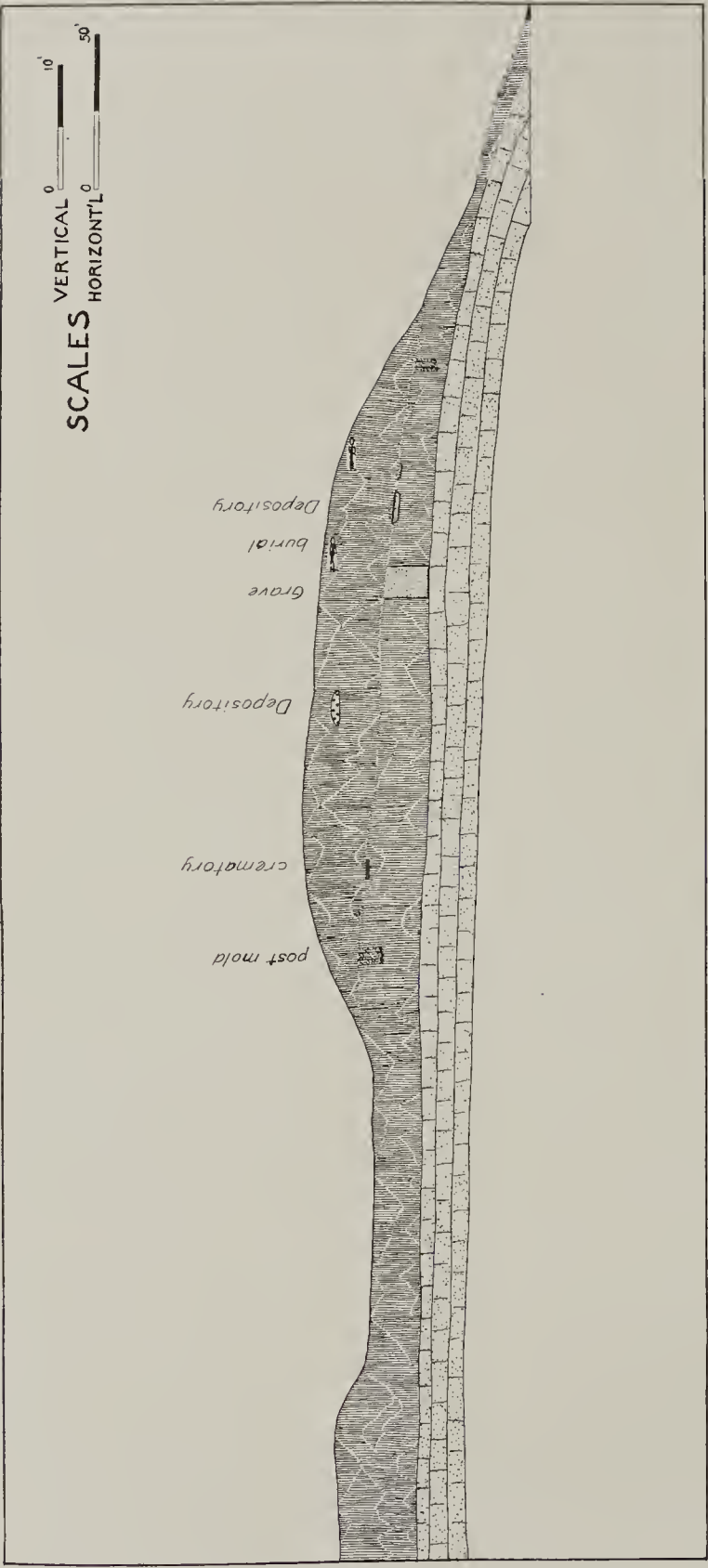
The maximum length of the mound as shown by our survey is two hundred and fifty feet and the maximum width one hundred and fifty feet, with an average width of one hundred and twenty feet. Its maximum height is eight and one-half feet, with an average height of about five feet. The solid contents of the mound are approximately three thousand cubic yards of earth, all of which was examined, after which the mound was restored to its original height and dimensions.

The surface of the mound had long been under cultivation and was devoid of trees or undergrowth, which greatly facilitated its examination. For the most part, it was constructed of surface soil secured in close proximity to the mound site, and within the encircling earthwork. Squier & Davis state that the mound is composed of loose broken sandstone and earth; we found but few pieces of sandstone, these occurring only in connection with intrusive burials. Within the body of the mound, now and then, small pockets of gravel were unearthed, while the central portion of the floor, surrounding the large communal grave and the cache of artifacts, was covered with fine sand to the depth of several inches.



PLAN OF FLOOR OF TREMPER MOUND.

FIG. 3.



SECTION OF TREMPER MOUND

FIG. 4.

The work of examining the mound was greatly retarded by frequent rains, the trenches at times being filled with water, so that much time was lost placing them in condition to continue. The floor or base of the mound sloped to the southeast, the drainage consequently being in that direction. As a result that portion of the mound was wet, a condition which retarded our examination and very often interfered with the critical inspection which is always given to every portion of a mound while the workmen are engaged in its removal. The remarkably distinct floor, which in every part of the mound was readily distinguishable from the earth composing the mound itself, greatly facilitated the locating of the rows of postmolds, marking the outline of the structure, as well as of the various rooms and compartments thereof.

Approximately six hundred of these postmolds were noted. Many of them were clean cavities extending both below and above the floor line, this condition being found where the posts had not been entirely consumed in the burning of the structure, leaving them gradually to decay, their places being marked only by the hollow mold. In other instances, the proof of the burning of the structure when its purpose had been served, and preparatory to the erection of the mound, was seen in the partly burned and charred posts. These were present both in the molds, at the floor line, and also where they had fallen during the conflagration, and had been covered before they were consumed. Specimens of the charred sections of posts were taken out intact and placed on display in the Museum.

SITE OF THE MOUND A SACRED PLACE.

The work of exploration soon disclosed that the Tremper mound is of the great Hopewell culture, but, with the possible exception of Mound No. 8, Mound City group, differing in several important particulars from mounds of that culture already explored. These differences, which presented themselves as the work of excavation progressed, were the depositing of the ashes from the crematories in communal depositories, the burial of cremated remains beneath the base line of the mound, and the placing of the artifacts of the dead in common

caches. In this last respect, Mound No. 8, Mound City group, was analogous, and it is probable that the communal idea extended also to the disposition of the cremated remains, although this, as well as interment of cremated remains below the base line, cannot at present be determined, as the explorations of Squier & Davis in that mound were of so desultory a character as to preclude any very definite or extensive information. Therefore, insofar as actual information goes, the communal character of burial and the sub-base interment of cremated remains are features exclusively of the Tremper mound.

As is to be expected in mounds of the Hopewell culture, it was found that the site of the Tremper mound had been occupied by a structure serving as a sacred place, in which the dead were cremated, their ashes deposited in prepared receptacles, and the doubtless intricate ceremonials accompanying these proceedings, including the depositing of implements and ornaments of the deceased, were carried out. The structure proper had been a large oval enclosure, approximately two hundred feet long and half as wide. A number of chapel-like additions, possibly to afford more space or to supplement that of the main structure, had been built from time to time. Upright posts averaging six inches in diameter, set into the ground to a depth of about two and one-half feet, formed the outer walls of the complex structure, as well as the partitions separating them into various compartments. The remains of a sort of wattlework, woven of twigs and limbs was found, which doubtless had been used to close the interstices between the upright posts, which were set about three feet apart. The floor of the area comprising the sacred structure had been carefully leveled and smoothed, and in places fine sand had been spread out over it. Doubtless parts of the structure at least had some sort of roof or thatch, as indicated by the arrangement of certain of the posts, but no direct evidence of the existence of such a roof was found.

Reference to the map shown in Fig. 3, "Plan of Floor of Tremper Mound," explains the arrangement of the structure into rooms or compartments. The postmolds indicate the outline of the entire building and of the additions, as well as various

partitions and supports. The more important of the additions to the main structure, it will be noted, were on the east and southeast, with others, in the nature of passageways and enclosures, with openings leading to the interior, principally along the north side. There appear to have been several openings at the extreme west end. It was the covering over with earth of these secondary additions, in constructing the mound, which gave it the anomalous shape suggesting the erroneous idea of an intentional animal effigy.

SPECIAL FUNCTIONS OF THE COMPARTMENTS.

The great room comprising the central and western portion of the structure, and particularly the south side thereof, was devoted entirely to the care of the dead. Here the greater number of the crematories were located, as well as several small depositories. Of the three large circular additions built onto the east end of the structure, the most southerly, forty-five by fifty feet in size, contained three large crematories, and apparently was given over entirely to the purpose of cremation. The floor of this room was covered to a depth of about one inch with charred leaves and straw.

The room directly north, being the central one of the three additions at the east end of the main structure, appears to have been given over entirely to the great cache of pipes and associated artifacts, described elsewhere. It contained however, in addition to the cache, a rectangular prepared basin or depository, unused, a cremated burial of a single individual, and a large fireplace. In this room, the floor of which had been covered with sand, no posts had been placed interiorly. This provided a large space around the fireplace, entirely clear from obstructions, a condition not noted in any other part of the structure.

The room just north of the one containing the cache, held a very large prepared depository for the ashes of the dead, and a large fireplace. This room doubtless was the main vault, in which the greater part of the cremated remains from the entire structure were deposited.

The smaller additions along the north side appear to have been mainly in the nature of long passageways and small rooms.

The floors of these, in great part, were covered with charred leaves, cloth and other charred substances, strewn in places to a depth of several inches. The most definitely outlined of these rooms along the north side, is that shown as number 25, in Fig. 3. This room appears to have been a veritable workshop and kitchen, the floor being strewn with the bones of animals, such as the deer, elk, bear, turkey and raccoon. None of these bones had been worked, but all were broken, indicating the use of the animals as food. Broken pottery, apparently associated with the preparation and storing of food, was also abundant on this floor, as was Ohio black shale, in pieces of a size suggesting their use in the making of ornaments. Practically the entire floor of this room was covered with mica flakes, in size from the smallest bits to fragments an inch or more in diameter, many of them apparently refuse from the large crystals of mica found in the great cache.

To the southeast of this room, and adjacent thereto, was a room, below the floor of which were found the two graves containing cremated burials, and described elsewhere.

Study of the map of the floor plan and of the data pertaining to the mound, enables one to picture rather vividly, the activities, carried on doubtless through a considerable length of time, of its builders in disposing of their dead.

DISPOSITION OF THE DEAD.

Cremation was an exclusive practice with the builders of the Tremper mound, not a single instance of uncremated burial being recorded. The uncremated burials found near the top of the mound, and described elsewhere, were of an intrusive nature, and did not pertain to the culture responsible for the building of the mound.

The crematories were identical with those found in the Harness and Seip mounds, and others of the same culture explored. They were twelve in number, and were scattered generally through the structure. All showed evidence of long-continued use, and in most of them the presence of charred human remains was noted. They were most in evidence in the

large room, at the south center of the structure, which seems to have been especially set apart for this purpose. The crematories were basin-shaped, many of them quite deep. The earth beneath them was burned red for a depth of almost one foot.

DISPOSAL OF CREMATED REMAINS.

The placing of the ashes of the dead in prepared communal depositories was the rule with the builders of the mound. The exceptions were two cremated burials below the floor of the mound, and two individual cremated burials. The communal depositories, peculiar to the Tremper mound, were four in number, consisting of a main depository, located in the east end of the structure, and three smaller ones, in the western end. These communal graves correspond in use, and to some extent in form, to the prepared graves of the Harness, Seip and other mounds of this culture explored, with the distinction that they served to contain, not a single burial or one consisting of the remains of a few individuals, as in the Seip mound, but an unlimited number of burials.

The depository numbered 8 in Fig. 3, and pictured as Fig. 5, was made of fine puddled clay, which after being worked into place was burned. The clay was applied with the hands, imprints of fingers being visible, as were also marks of the digging stick used in tamping down and shaping the sides of the basin. The depository was in the form of a parallelogram, ten feet and three inches long, and five feet wide, with a central depth of six inches. The bottom measured six feet and six inches long by thirteen inches wide, its surface being perfectly flat and level. The grave was filled with human ashes and charred bone to a depth of a little more than one foot; these ashes however, were very compact, and originally must have been piled high above the rim of the basin. The contents of the depository no doubt represent the remains of hundreds of cremated bodies, indicating the use of the grave for a long period of time. The floor surrounding the great basin was covered on the south and west sides with fine yellow sand, and on the east and north sides with bits of charcoal and ashes mixed with clay.



FIG. 5. The Great Depository for the Cremated Dead.

The three small depositories, shown as 20, 21 and 22, in Fig. 3 were not specialized as was the large one, but were merely prepared bases of clay. The ashes of the dead were piled upon these flat bases to a depth of two and one-half inches in No. 20; two inches in No. 21 and three inches in No. 22. A specialized depository (No. 6, in Fig. 3) was found near the great cache, but it contained no cremated remains and apparently never was used. In form it was very similar to the large grave, and measured five feet and three inches in length and two feet and five inches in width, outside measurements.



FIG. 6. The Unused Depository.

A comparison of the mortuary customs of the Tremper mound builders with those of the Harness and Seip mounds, shows the great advantage of the communal plan of the former. In the use of individual prepared graves, as in the Harness mound, or in the Seip mound where the graves occasionally were enlarged so as to hold as many as four cremated bodies, the available space soon would be exhausted, while under the communal grave plan, the number of cremations that could be placed in one depository was limited only by the size of the depository. Additional depositories, moreover, could easily be constructed, making the Tremper mound plan of burial much superior.

ESTIMATED NUMBER OF CREMATIONS.

There is no way of exactly ascertaining the number of dead contained in the four depositories of the Tremper mound. The bulk of ashes and charred bones was computed at twenty-five cubic feet, which, allowing one-fifteenth of a cubic foot to each burial, would represent the cremation of three hundred and seventy-five individuals. No doubt this is far short of the total number of dead cremated, as the floor of the charnel-house was strewn with ashes and fragments of charred human bones.

An individual cremated burial was found in the room containing the great cache, and is shown as No. 24 in Fig. 3. This burial appears to have been of considerable importance, as it was placed in the angle formed by the joining of two walls, and a row of small posts placed around it. A second individual cremated burial was found in this room, about two and one-half feet above the floor. With the charred remains was a flint spearpoint, six inches long.

BURIALS BENEATH FLOOR LEVEL.

A feature peculiar to the Tremper mound was the finding of cremated burials beneath the floor. These are shown as 12 and 13 in Fig. 3. The two graves were three and one-half feet deep, the floors being the surface of the undisturbed sandstone strata underlying the site. Their dimensions were seven feet long and three feet wide, and seven feet long and five feet wide, respectively. The first grave, No. 12, contained only a small amount of ashes and charred remains, and no artifacts of any kind. The second grave contained, besides the cremated remains, four copper ear ornaments, mica cut into the form of crescents, a mica effigy of the bear, and a small flint spearpoint.

PRIMITIVE MASONRY.

A special feature of this grave was a wall of thin slabs of sandstone at the sides and ends of the grave, completely lining it, and forming a vault-like receptacle, with perpendicular walls. As far as recorded this is the only instance of a regularly laid

up wall of stone, constructed by aboriginal man in Ohio. The wall was two and one-half feet high, constructed of flat pieces of sandstone, averaging from one inch to three inches in thickness, and in length from four to twelve inches.

FIRE PLACES.

What might easily have been confused with the crematories of the mound, were two fireplaces, situated one in each of the more northerly of the tier of rooms at the east end of the mound, and shown in Fig. 3 as 4 and 7. That shown as 4 was located in the room where the great cache was found, and was surrounded by an extensive space of level floor, unencumbered by interior posts. The fireplace was three feet in diameter and in the form of a basin, four inches in depth, the earth being burned red for one foot below its base. The basin contained no remains of human bones, but instead charcoal and ashes in great quantities. The fireplace shown as 7 in Fig. 3, located in the room with the great depository, was fully four feet in diameter, circular in form, with a basin-like depression at the center, four and one-half inches deep. It was filled with charcoal and the earth beneath burned red for fully one foot in depth. This fireplace showed evidences of having been mended by plastering the sides of the basin with puddled clay.

The prominence of the location of these two fireplaces, with respect to the communal deposits of ashes and artifacts, suggests that they may have been dedicated to the sacred fire, which plays so important a part in the ceremonial observances of primitive peoples.* From the great depth to which the earth beneath them is burned, it would appear that they were in use for a long time; while the amount of charcoal contained therein would indicate that they were burning at the time the construction of the mound was begun.

INTRUSIVE BURIALS.

As is not infrequent in mounds of any culture, the Tremper mound was found to contain intrusive burials. These were

* The Cherokees believed that a perpetual sacred fire burned beneath the mounds.

placed near the top of the mound uncremated, and were of a culture entirely different from that of its builders.

Previous to the exploration of the mound, the sons of Dr. Tremper had, in occasionally digging into its top, unearthed perhaps ten of these intrusive burials. Our examination disclosed five additional skeletons, one of which is shown in Fig. 7. Two of the burials were so near the surface that cultivation had disturbed them. The graves of these burials were all prepared by placing slabs of sandstone on edge around the sides and ends, and by using similar slabs as coverings. The large stone shown lying across the neck of the skeleton in Fig. 7, is



FIG. 7. Intrusive Burial near Surface.

one of these slabs, which had fallen into the grave. Artifacts found with the intrusive burials are shown in Fig. 8.

DISPOSITION OF ARTIFACTS.

The communal disposition of the ashes of the dead, as carried out in the Tremper mound, naturally would be accompanied by a similar disposition of the artifacts usually associated with burial. The logical expectation perhaps, would be to find them deposited along with the ashes in the common receptacle; that is, simply substituting for graves containing individual burials and artifacts, a common grave wherein the ashes and

artifacts of an unlimited number of individuals would be placed. Instead of this, however, it was found that separate depositories were provided for each.

The great cache of tobacco pipes and associated objects found by Squier & Davis in 1846, in Mound No. 8, Mound City group, Ross county, has been the wonder of archeological research in Ohio until the present time. Few archeologists ex-



FIG. 8. Artifacts Found with an Intrusive Burial.

pected that this great find ever would be equalled, the cache being considered as unique and alone in its class. Owing to the superficial character of the Squier & Davis' explorations at that place, the Mound City tumulus and its remarkable contents have been only indifferently understood; now, however, the examination of the Tremper mound not only throws the desired light upon the character of the Ross county mound, by duplicating its known features, but even goes so far as greatly to sur-

pass it in point of artifacts found, both as to number and artistic execution.

The results of the exploration of the Tremper mound, aside from their bearing upon any phase of Ohio archeology, are exceedingly gratifying; but when they serve further to elucidate the exact nature and purpose of the only mound altogether similar, so far explored, the results are, in effect, two-fold.

Two distinct caches of artifacts were found in the Tremper mound; one, the principal depository for the ornaments and implements of the dead, being very extensive and apparently having served along with the great depository for ashes through a considerable period of time, and the other, evidently deposited all at one time during the construction of the mound. The first, or larger, of these caches, was located in the central one of the three large rooms at the east end of the structure, and is shown as 5, in Fig. 3. It occupied a space of about six feet in diameter along the south side of the unused depository, shown as 6, the objects comprising it being placed in a heap, of which the large stone disk, shown as Fig. 111, formed the center.

All objects in this cache had been intentionally broken, the supposition being that this was done to avert the likelihood of their being stolen from the great open deposit. The cache of artifacts, as was the cumulation of ashes in the communal grave, was a product of time, doubtless a number of years elapsing between the time it was begun and the final destruction of the building. Despite the natural respect of primitive man for the property of the dead, the beautiful objects placed in the cache would prove a great temptation to the derelict, or to the stranger who might gain access thereto; so that, to render them undesirable each object was deliberately broken, and the fragments then deposited in the cache. In this respect, as in all others recorded, the Mound City tumulus, Mound No. 8, was similar.

The second cache of artifacts was found near the center of the mound, two and one-half feet above the floor line. This secondary cache, so far as known peculiar to the Tremper mound, differed from the large cache in that the objects composing it were unbroken and in perfect condition. This is

readily understood, when the position of the cache in the mound is considered. Being within the mound proper, and well above the floor, it clearly had been made after the burning of the structure and during the erection of the mound, the objects being deposited simultaneously and at once covered over, thus averting danger of theft.

CONTENTS OF THE CACHES.

The feature of the large cache was one hundred and thirty-six tobacco pipes. These pipes were of the so-called platform type, a number of them being carved in the effigy of birds and animals, and the remainder plain. Besides the pipes there were in this cache, among other things, beads, gorgets and boat-shaped objects of copper; crystals of mica and galenite; ear ornaments of stone; cones cut from quartz crystals and galena; ornaments made from jaws of animals and of man; flint cutting implements; mealing stones; woven fabrics; and the large stone disk already mentioned. In addition to the objects enumerated, there were present in the cache many objects made from wood and bone, mostly decomposed or burned. A total of more than five hundred specimens had been placed in this cache.

The smaller of the two caches contained nine tobacco pipes, representing the platform type, the tubular and the modified tubular types. Among those of the platform type were several extremely large and fine pipes, made from red Ohio pipestone, the largest and finest ever found in an Ohio mound.

The tubular forms likewise are particularly large and fine. In addition to the pipes, this cache contained a pair of the rare type of ear ornaments, made from red Ohio pipestone, and a pierced slate tablet.

ART DEVELOPMENT.

The sculptural art displayed in the pipes taken from the Tremper mound represents the highest esthetic attainment of the Hopewell culture, and probably never has been surpassed by any people in the stone age period of its existence. The technique displayed in the portrayal of life forms is no less admirable than the apparent faculty of the artist for observing

and appreciating the habits and peculiar characteristics of the birds and animals with which he was familiar. The animal and bird forms depicted in the sculptures, comprise fifteen genera of the former and twelve of the latter, the genera in a number of instances, being represented by several species.

In the pipes of the plain type, the graceful forms of both bases and bowls, and the bi-lateral symmetry of the specimens, is such as to attract attention and compel admiration.

THE MOUND CITY CACHE.

In 1846 Squier & Davis found a cache in Mound No. 8, Mound City group, which they describe as follows: "Intermixed with much ashes, were found not far from two hundred pipes,* carved in stone, many pearl and shell beads, numerous discs, tubes, etc., of copper, and a number of other ornaments of copper, covered with silver, etc.; etc. The pipes were much broken up, some of them calcined by the heat, which had been sufficiently strong to melt copper, masses of which were found fused together in the centre of the basin. A large number have nevertheless been restored, at the expense of much labor and no small amount of patience."

I never have had the pleasure of seeing the collection of pipes taken from Mound No. 8 and now in the Blackmore Museum at Salisbury, England. However, from the cuts and description of the broken specimens, in "Ancient Monuments of the Mississippi Valley" and in the catalog of the Blackmore Museum, I am satisfied that the breaking was not due to fire, but that they were broken intentionally when placed in the cache, exactly as were the pipes in the Tremper mound. Stone broken by heat has a different appearance from stone broken by a blow from a heavy instrument; as to the copper being melted, I am satisfied that Squier & Davis confused the adhesion of copper pieces, due to oxidation, with what they mistook for

* The collection of Squier & Davis was purchased by Mr. Blackmore for his Museum at Salisbury, England. The number of pipes secured in mound No. 8 as recorded in the Museum's printed catalog, known as "Flint Chips," is only 95.

fusion by fire, which they state was "sufficiently strong to melt copper."

This condition of copper pieces firmly adhering thru corrosion, was found in the Tremper mound, associated with the pipes. The same condition was quite noticeable in the Harness and Seip mounds and is found in practically all mounds where a number of copper pieces are placed together. In the Harness mound numbers of ear ornaments were united thru corrosion, suggesting their fusion by fire; but on the contrary, the charred remains of the cremated dead placed over them, had protected the ear ornaments from any contact with the fire kindled as the final ceremony. The Seip mound gave many more examples of the fusing of copper pieces by corrosion. In one instance large copper plates were so united that they could not be separated; in another a copper plate could not be detached from a crescent of copper partly covering it; and yet none of these specimens had been subjected to the action of fire.

BUILT BY SAME PEOPLE.

The data given by Squier & Davis in their explorations of the Mound City group, is not sufficient to make available for comparison the manner in which the objects were deposited in the cache, but the similarity of the sculptured pipes from the two mounds and the stone from which they were carved, seems to be proof conclusive that they were made by peoples having the same mortuary customs, and were placed in the cache in the same way. For instance, the heron eating a fish, found by Squier & Davis is almost an exact duplicate of one from the Tremper mound, as is also the otter with a fish in its mouth, altho this specimen was mistaken by Squier & Davis for the manitus, a water animal whose habitat is Florida. In fact all the animal sculptures from the Mound City group, with the exception of the elk, were duplicated in the Tremper mound and in addition the following sculptures were found: gray fox, porcupine, dog, deer, rabbit and mink.

While the art shown in the Tremper Mound pipes in general is superior to the Mound City specimens, both as to sculpture of the various animal and bird forms and in their

fidelity to nature, the technique in both instances is strikingly similar.

The Tremper mound site is not so large as the Mound City group site, but the protecting earthwork surrounding it is similar. The unfortunate lack of detailed information concerning the mounds in the Mound City group, explored by Squier & Davis, makes impossible a comparison of the disposal of the dead by the Tremper and Mound City peoples.

Squier & Davis state that the great cache in mound No. 8 was placed upon a sacrificial altar 'intermixed with much ashes,' and from their statement that "the pipes were much broken — some of them calcined by heat, which had been sufficiently strong to melt copper," we must infer that they believed that a great fire had been kindled upon the altar. These same conditions obtained in the Tremper mound and while we have proof that the building covering the site was destroyed by fire, I am sure that no fire was especially kindled upon the cache itself. Altho objects made of bone, wood and cloth were found in a charred state, the fire was not sufficient to melt the crystals of lead found in the cache, nor in any way to injure the broken pipes or stone gorgets.

Taking everything into consideration it would not be surprising to find that the Mound City peoples, after erecting their mounds, migrated down the Scioto and formed a new settlement on the site of Tremper mound. At any rate, if not the same people or parts of the same people, the builders of the two sites must have been very closely related.

DESCRIPTION OF ARTIFACTS.

In the following pages the various implements and ornaments found in the two caches of the Tremper mound are described in detail, and wherever possible comparisons are made with like objects from other mounds.

TOBACCO PIPES.

One hundred and forty-five pipes were taken from the Tremper mound, one hundred and thirty-six of them being

found in the large cache and nine in the small one. All pipes in the first cache were intentionally broken as deposited, while those placed in the second cache were in perfect condition, having been deposited simultaneously while the mound was in process of erection.

Most careful and painstaking scrutiny was required in finding the broken parts of all pipes and other objects,* comprising the larger cache, the fragments being scattered thru a great mass of charred material, debris and earth covering the cache, parts of specimens often being several feet distant from one another. One hundred and six of the one hundred and thirty-six pipes secured, were fully restored. The remaining thirty, made of very soft materials, were weathered and decomposed beyond repair. More than half of these thirty fragmentary pipes had been broken while in use and mended with copper, by the owners. About twenty of the thirty are effigies of birds of various kinds, the other ten being effigies of the otter and beaver and the plain curved platform type. Of the one hundred and six pipes restored, sixty are effigies and the remainder plain, the latter made with more or less expanded bowls and curved bases. All of the one hundred and six are made of the Ohio pipestone native to the region adjacent to the mound, with the exception of one — the large eagle effigy — which is made of coral limestone. In almost every instance, the pipes found by Squier & Davis were made of this same pipestone, altho they did not recognize the stone as a native product but stated that the pipes were "mostly composed of a red porphyritic stone, somewhat resembling the pipestone of the Coteau des Prairies, excepting that it is of great hardness and interspersed with small variously colored granules." At the time of the explorations by Squier & Davis (1846) but little was known of the geological formations in the state so that they may be excused for not recognizing the rock from which the pipes were made, altho its native bed is only a short distance from the mound.

* My assistant, Mr. H. C. Shetrone, for the most part removed the contents of the cache. Much credit is due him for his careful work in securing the broken parts and afterwards in restoring the pipes.

COMPOSITION OF THE PIPESTONE.

After the Mound City finds were installed in the Blackmore Museum at Salisbury, England, Professor A. C. Church, chemist in the Royal Agricultural College, Cirencester, made a chemical analysis of the material of which the pipes were made, and in his report† calls it argillaceous ironstone and describes its physical character as follows: "This stone is not a definite mineral but a mixture of minerals — a rock. Its hardness varies in different parts of the same specimen — the harder parts approaching six and the softer parts not exceeding 4.5. These softer parts are paler in colour, contain much less iron than the harder parts, and seem to consist of minute globules of a compound silicate, perhaps a feldspar. Some of the pipes and other objects fashioned from this ferruginous stone are much fissured internally and blacker inside than out. When most compact this stone has a density 4.3; when least so about 3.07." Quoting further from Professor Church: "In the following analysis the silica was ascertained 'by difference' and includes a little alkali. In 100 parts there are:

Silica	46.42
Ferric oxide —	
(Peroxide of iron).....	34.80
Alumina	16.45
Magnesia	.46
Lime	1.48
Water	.39
	100.00

"The collection contains many examples of this curious clay ironstone. Some of these approach in structure to the red pipestone (Coteau des Prairies), often termed catlinite. But they are more variolitic in texture and much more mottled and diversified in colour. Some specimens are iron gray or dark brown; others pale gray, spotted with white."

The analysis of samples of the pipestone from Gephart

† "Flint Chips," by Edward T. Stevens, 1870; page 415.

Station, Scioto county, Ohio, as made by Dr. James R. Withrow, of Ohio State University is as follows:

Silica dioxide	48.87
Aluminum oxide	32.39
Ferrous oxide	1.26
Titanium dioxide	1.45
Calcium oxide	.40
Magnesium oxide	.35
Alkalis	1.52
Phosphoric acid	.12
Sulphur	.26
Loss on ignition.....	12.98

The following analysis of fireclay from Sciotoville, Scioto county, Ohio, was made by Professor Edward Orton, Jr., of Ohio State University:

Silica	43.75
Oxide aluminum	34.10
Oxide iron	3.66
Oxide titanium	3.84
Oxide calcium	.56
Oxide magnesium	.55
Oxide potassium	.07
Oxide sodium	.03
Loss on ignition.....	13.86
Total	100.42

The marked difference in the analyses, particularly as regards iron oxide, is due to the fact that the Mound City specimens analyzed were of the red pipestone, heavy in iron, while those analyzed by the Ohio State University chemists were of the lighter colored stone, having a comparatively low percentage of iron.

ANIMAL SCULPTURES.

The animal sculptures represented in the pipes from the mound comprise at least fifteen genera, numbering from one to six specimens each. Those identified are: bear, mountain lion, wildcat, raccoon, porcupine, opossum, beaver, otter, dog,

rabbit, mink, deer, fox, wolf and squirrel. Taken as a whole, these animal effigies, while not always closely approximating nature, with respect to form and proportions, depict many of the characteristics and peculiarities of the subject portrayed and display a striking familiarity on the part of the prehistoric artist, with the native fauna.

OTTER EFFIGY PIPES.

Pipes made in the image of the otter (*Lutra canadensis*) taken from the mound are eight in number. In five of these the animal is represented with a fish in its mouth, two of the sculptures being full length, Figs. 9 and 10, while three of them represent only the head and shoulders, Figs. 11 and 12. The three remaining show the plain head and shoulders. The early sculptors must have been greatly impressed with the otter, as they were able to portray in stone, with remarkable fidelity to nature the appearance and habits of the animal as is shown in Figs. 9 and 10.

To those who have studied the habits of the otter, it is readily apparent that the ancient sculptor in depicting this animal produced a masterpiece full of spirit and action. Comparison of the sculpture of the otter taken from the mound with a colored plate of the same animal shown in Cuvier's *Mammalia*, Vol. 2, plate 315, and with the animal itself, readily shows how true to nature the ancient artisan did his work, and how erroneously the early modern artists sometimes portrayed their subjects.

The sculptured pipe of the otter shown in Fig. 9 is made of yellowish-brown Ohio pipestone, the platform four and one-half inches long, one and one-fourth inches wide at each end, and one and three-fourths inches wide in the center, with a pronounced curve from front to back. The platform is a full quarter of an inch in thickness, cut square at the front, or stem end, where the stem hole leads to the bowl, the back end forming a gracefully rounded curve. The bowl of the pipe extends vertically thru the body of the otter, which is carved at full length with a large well formed fish in its mouth. The sculptor has displayed much skill in portraying such features of the



FIG. 9. Pipe in the Effigy of the Otter.



FIG. 10. Pipe in the Effigy of the Otter.

animal as the bowed back, large flat head, short ears and compressed tail, all of which are characteristic of the otter.

Fig. 10 is another effigy of the otter, and like that shown in Fig. 9 is sculptured at full length with a fish in its mouth. The workmanship on this specimen is equally as good as in the preceding one. The pipe is made of blue-gray Ohio pipe-stone, highly polished. The length of the platform is four inches, the width one and one-fourth inches and the thickness a full quarter of an inch. The end from which the stem hole is drilled is square, and the other end rounded with a notch cut into its edge. The broad flat head and short ears are well fashioned and the color markings around the head and neck are distinct.

Fig. 11 is a bold representation of the otter, carrying a fish in its mouth, only the head, shoulders and forelegs of the animal being depicted. The facial and body markings are quite pronounced and the eyes are set with copper. The pipe bowl is unusually large, extending more than two inches above the platform and measuring a little more than one inch in diameter.



FIG. 11. Pipe in the Effigy of the Otter.

The platform is a representative one, the ends square with rounded corners; length of stem three and one-half inches; width at each end one and one-fourth inches, expanding at the center to one and three-fourths inches. The bottom of the platform is embellished with an oval plate of copper one inch long and one-half inch wide, set in a depression cut into the stone. The plate which can be seen in the cut, is near the stem end of the platform, the other end being ornamented with a band of criss-cross lines one-fourth of an inch in width, cut at right angles to the stem. The pipe is made of light blue-gray Ohio pipestone with splotches of brown, and is a fair example of the three pipes of this form.



FIG. 12. Pipe in the Effigy of the Otter.

Fig. 12 is a splendid representation of the otter, in which the sculptor emphasized the broad flat head and peculiar nose of the animal. The color markings on the head and front of the body are well defined. The pipe is small but well carved, the platform being two and seven-eighths inches long and one inch wide at each end, with only a slight enlargement at the center. The stem end of the platform is square while the other end is oval, with a small indentation in its edge. The pipe is made of light blue-gray Ohio pipestone. Two pipes found by Squier & Davis in mound No. 8,* Mound City group are identified by

* Ancient Monuments of the Mississippi Valley; page 257.

them as the otter. One of these, Fig. 157, in my opinion is not the otter, while Figs. 153 and 154 in the same volume, named by them the lamantin, I am perfectly satisfied represent the otter. The markings upon the heads and fronts of these pipes are similar to those on the otter pipes, taken from the Tremper mound.

As far as recorded the Mound City group and the Tremper mound are the only ones in Ohio from which the sculptures of the otter have been taken. The skeletal remains of the otter were found in the Gartner Village site six miles north of Chillicothe, along the Scioto, where a number of parts of skulls were secured. At the Baum Village site more than twenty parts of skulls of the otter were found, showing that this animal was much sought after, not only for its skin, but also for food.

RACCOON EFFIGY PIPES.

Fig. 13 is the image of the raccoon in a characteristic attitude perched on the top of a stump or broken limb, far above the ground and viewing its surroundings. The pipe is made of grayish-brown Ohio pipestone. The platform base is gracefully curved, is four inches in length, one and one-fourth inches



FIG. 13. Pipe in the Image of the Raccoon.

wide at each end and one and one-half inches at the center. The ends are square, the rear end having the corners rounded. The bowl of the pipe rises from about the center of the platform and upon this bowl is carved the complete image of the raccoon, grasping the sides of the broken limb with head and tail extending far out on either side. The head and tail are exaggerated but the facial markings are very good, and the angle of the ears gives the animal the characteristic appearance of alertness when intently viewing some object.



FIG. 14. Pipe in the Image of the Raccoon.

Fig. 14 shows another image of the raccoon in about the same attitude as that in Fig. 13. The pipe is made of blue-gray Ohio pipestone, and is somewhat longer and bolder than the one just described. The platform has a gentle curve, is four and one-half inches long, one and one-fourth inches wide at each end, and one and three-fourths inches wide in the center. With the exception of the exaggerated tail the sculptor has truthfully portrayed the characteristics of the animal. The eyes are properly placed and are made of copper.

Fig. 15 is another splendid sculpture of the raccoon, which is represented at full length with its left foot in a crawfish hole,

a peculiar and well known habit of the animal. This well carved pipe shows that the sculptor, doubtless a close observer of the raccoon, was really able to record in stone for all time a faithful account of this animal and its habits as seen by aboriginal man. He shows the general posture the animal assumes as it leisurely searches the crawfish hole for food, and that there may be no doubt as to what the raccoon is doing, the pellets of mud incident to its construction are distinctly carved out on the upper extension of the crawfish hole. The expression of cunning is exemplified in the general make up of the entire sculptured piece. The pipe is three and one-half inches



FIG. 15. Pipe in the Image of the Raccoon.

long and the platform one inch wide at either end, the stem end square, while the opposite end terminates in a graceful curve. The head markings are pronounced and the eyes are set with copper. In its entirety this pipe is the real masterpiece of the raccoon sculptures.

Fig. 16 is another pipe made in the image of the raccoon. It resembles the pipe just described as to general form, but the sculptor has not brought out the craftiness of expression displayed in the preceding specimen. The pipe is small and made of blue-gray Ohio pipestone. The platform has a decided curve.

and is three inches long, seven-eighths of an inch wide at each end and one and one-fourth inches wide at the center. The head markings are very pronounced as are the markings on the tail.

Squier & Davis state that they found an effigy of the raccoon at the Mound City group, but give no illustration. The Blackmore Museum illustrates the head of an animal they are pleased to call the raccoon, but which is very likely the gray fox.

The bones of the raccoon (*Procyon lotor*) were very abundant at the Baum Village site, along Paint creek in Ross county, where thirty-five fragmentary skulls and one hundred



FIG. 16. Pipe in the Image of the Raccoon.

and twenty-seven parts of lower jaws were found. This animal seems to have been much sought for food, and its bones were made into ornaments and implements. At the Gartner village, six miles north of Chillicothe, abundant evidence of the use of this animal for food was found. In fact wherever animal bones are found in the old villages, those of the raccoon are very prominent.

GRAY WOLF EFFIGY PIPES.

The sculpture of the gray wolf is shown in Fig. 17. The primitive artist again has displayed his skill by depicting the

attitude the wolf assumes in viewing the habitation of the Indian, when well out of range of weapons. The pipe is made of gray Ohio pipestone, somewhat discolored with splotches of brown. The platform is gently curved, is one and one-fourth inches wide, three and one half inches long and square at both ends. The wolf is portrayed in a sitting posture, more than two and one-half inches high, the head and ears thrown intently forward, the tail lying upon the platform. In point of



FIG. 17. Pipe in the Effigy of the Gray Wolf.

spirit the sculpture is perhaps unsurpassed in the collection of pipes.

Fig. 18 shows another effigy of the gray wolf. The workmanship in this pipe is inferior in many ways to the one last described. Its general resemblance is more that of the bear, particularly about the head, and one would feel justified in so naming it, had not the artist appended the long tail. The pipe is made of dark-blue Ohio pipe-stone. The platform is grace-

fully curved, is one and one-eighth inches wide at the stem end, while the other end, originally in the form of an oval, had been slightly broken and mended by the owner. The stem hole connecting with the bowl of the pipe is unusually large, being almost one-fourth of an inch in diameter. The eyes of the animal are set with copper. Squier & Davis, in describing their finds at Mound City, figure a broken head of this animal, while a perfect restored specimen is shown in the catalog of the Black-



FIG. 18. Pipe in the Effigy of the Gray Wolf.

more Museum, which is similar in every respect to the pipe shown in Fig. 17.

The gray wolf, (*Canis occidentalis*) must have been very plentiful during the prehistoric occupation of the Scioto valley, as we find evidence of his presence in the bones taken both from the Gartner village and Baum village sites, altho not in large numbers. The large bones were broken into fragments, or used in the manufacture of implements, and the teeth for the most part were used for ornaments, even the molars and pre-molars having the roots perforated to be worn as ornaments.

EFFIGY OF THE GRAY FOX.

The gray fox is shown in Fig. 19, a splendid sculpture of this animal. The pipe is made of blue-gray Ohio pipestone and is highly polished. The platform has a very slight curve, is four inches in length and one inch wide at the stem end, which is square. The platform widens from the front to the center, where its width is more than one and one-half inches, and gradually tapers toward the rear, forming a gracefully rounded end. The image of the fox rises from about the



FIG. 19. Pipe Representing the Gray Fox.

center of the platform and represents the animal in a sitting attitude, with head and body thrown forward and front feet touching the platform. The head has the characteristic markings of the gray fox and the ears are thrown forward as if intently viewing some object. The primitive artist certainly has portrayed the general form and features of the animal as well as its characteristic attitude and expression. The sculpture of the gray fox (*Urocyon virginianus*) has never before been reported, but its presence in Ohio during the time of pre-history man is evidenced by finding numerous bones of the animal at the Baum village site along Paint creek. Here the remains of the fox were perhaps as numerous as the bones of any animal

excepting the deer. At the Gartner Village site along the Scioto, the bones of the fox were found in large numbers.

EFFIGY OF THE INDIAN DOG.

The only representation of the dog coming from an Ohio mound, that could rightly be identified as such, is shown in Fig. 20. The primitive artist knew his subject well and was



FIG. 20. Pipe Representing the Indian Dog.

able to reproduce in stone the general form and features, as well as the characteristic attitude and expression of the dog, "baying at the moon." No other sculpture from the mounds is more pleasing and none tells so much of natural history as this sculpture of the only domesticated animal of primitive man in Ohio. The pipe is made of blue-gray Ohio pipestone and is well fashioned. The platform has a decided curve, and is two and three-fourths inches long and one and one-eighth inches wide at the stem end, gradually narrows from the center to the rear, where the top of the platform is concave, and ends in

a rounded oval. The bowl rises from the center of the platform and represents the dog in a sitting posture, the tail curled over the back and the head thrown high as in the attitude of barking. While, so far as we know, Fig. 20 shows the only authentic sculpture of the dog taken from the mounds of Ohio, the bones of the animal have been found, both at the Baum village site and at the Gartner village site. At the Baum site bones of the dog were found in every part of the village and his presence as a domesticated animal is shown by the gnawed ends of bones found in practically every refuse pit. At the Gartner mound and village, the bones of the dog were in evidence and instances of the gnawing of bones were abundant.

EFFIGY OF THE BLACK BEAR.

The sculpture of the black bear, (*Ursus americanus*) shown in Fig. 21 is perhaps the finest of the three bear pipes found. The pipe is made of dark-blue Ohio pipestone and is carved with much spirit and fidelity to nature. The platform is three and one-half inches long, flat on top and convex beneath. It is one inch wide at the stem end and carries this width almost to the opposite end, where it narrows to three-fourths of an inch, forming a symmetrically rounded end. The stem, directly



FIG. 21. Pipe in the Image of the Black Bear.

in front of the great paws of the bear, was broken while in use by the owner, and very ingeniously mended, by boring holes in each piece, inserting dowel pins and then placing around the stem a band of copper to hold the parts together. The eyes are set with pearls and the carving represents the animal with the mouth partly open, showing the teeth, of which the canines are especially emphasized. In the collection of the Ohio State Archeological and Historical society is a very large pipe carved in the image of the bear, drawing her cub toward her and showing her teeth in defiance of an enemy.



FIG. 22. Pipe in the Image of the Black Bear.

Fig. 22 shows another sculpture of the bear in a sitting posture which falls short of the one just described, the carving being cruder; however, the poise of the head is good. The eyes are set with copper. The platform is three and one-fourth inches long and one and one-eighth inches wide, square at the stem end and ending in a graceful curve at the rear. One ear of the animal was broken off, evidently during its use by the owner. The pipe is made of very light-gray pipestone, in places much discolored by dark brown splotches of iron.

Fig. 23 shows the third sculpture of the bear, which represents the animal standing at full length. While the general proportions are good, the sculpture has but little spirit, the work not being equal to the two others described. The pipe is made of dark-blue Ohio pipestone. The curved base is three and three-fourths inches long and one inch wide at the stem end, which is square. The opposite end of the platform is only three-fourths of an inch wide, with rounded corners.

Many pipes representing the bear have been found on the surface in Ohio, but we have record of only one other from a



FIG. 23. Pipe in the Image of the Black Bear.

- * mound, namely, that found by Squier & Davis in Mound No. 8 of Mound City group. Of this pipe they figure only the head, the other pieces having been lost.

It is known that the black bear was highly prized by the prehistory Indians of Ohio, for we find the bones of the animal in practically every village site examined. At the Baum site along Paint creek, they were in evidence in every section of the village, the same being true at the Gartner site, along the Scioto. The teeth and jaws of the bear were highly prized for ornament and they were very often made in imitation. In the cache associated with the pipes of this mound, cut bear jaws and imitation bear teeth were found in goodly numbers.

MOUNTAIN LION EFFIGY PIPES.

Fig. 24 shows a pipe made in the image of the mountain lion, carved with much spirit and fidelity to nature, showing that the sculptor was a close observer of this animal. The lion is in a sitting position with the tail carved in relief on the rear of the finely curved platform, the body thrown forward, the short stout head at a poise showing contentment after partaking of a heavy repast, and the mouth partly open as in the act of grooming itself. The characteristic eye markings are plainly



FIG. 24. Pipe Representing the Mountain Lion.

shown. Taken as a whole this pipe is the finest of the three sculptures of the mountain lion. The specimen is made of light-gray Ohio pipestone, strongly discolored by brown splotches of iron. The platform has a gradual curve from end to end and is four inches long, one and one-fourth inches wide at the stem end, gradually tapering to the rear of the platform, where it ends in an oval.

Fig. 25 shows the second of the three sculptures of the mountain lion. It is quite evident from the difference in conception of the animal that the pipes were not fashioned by the

same sculptor. In the specimen shown in Fig. 24, the primitive artist depicted the general features and pose of the animal true to nature. In this specimen the legs and feet are greatly emphasized, making the lion appear a clumsy animal like the bear. The pipe is made of light red, shading to dark red, Ohio pipestone. The platform which is square at both ends, is seven-eighths of an inch wide, gradually tapering to the center, where it is one and one-fourth inches wide. The lion is sculptured at full length in a standing posture, with all four feet braced, as in the act of dragging an object. The mouth is partly open, exposing the teeth, and the ears are erect.



FIG. 25. Pipe Representing the Mountain Lion.

Fig. 26 shows the third sculpture of the mountain lion, which very likely represents the work of a third primitive artist, as the conception of the animal in this specimen is unlike either of the two previously described. Only the head of the animal is represented. The facial markings, eyes and whiskers are plainly exaggerated, and the ears are carved at a wrong angle, while the sculpture lacks spirit and truthfulness, yet the general features of the lion are readily recognized. The pipe is made of dark-gray Ohio pipestone, mottled with circular globules of white. The base is beautifully curved, square at both ends and one and one-eighth inches wide. The stem end was broken while in use, and the piece attached by means of

a band of copper, three-fourths of an inch wide, securely fastened around the stem.

The bones of the mountain lion (*Felis concolor*) were found at the Baum village site and at the Gartner mound and village site. At the former the bones of the animal were found sparingly in every part of the village. However, the mountain lion seems not to have been so abundant in the wilds of Ohio in early days as was the bear and wolf, or even the wild cat. The bones of the mountain lion were highly prized for implements, and the teeth and jaws were made into ornaments, not



FIG. 26. Pipe Representing the Mountain Lion.

only the canine teeth being used, but the molars and pre-molars as well.

As far as recorded the only sculpture of this animal, other than the Tremper mound finds, was taken from mound No. 8, Mound City group by Squier & Davis. They figure only the head of this effigy, but in the catalog of the Blackmore Museum it is shown fully restored.

WILD CAT EFFIGY PIPES.

Two sculptures of the wild cat (*Lynx rufa*) were found, both showing plainly the work of a master hand. The pipe

shown in Fig. 27 is made of dark-blue Ohio pipestone. The base, but slightly curved, is three inches long, one inch wide and square at each end, with the corners at the rear end rounded. The bowl of the pipe, rising directly from the center of the platform, represents the animal in a sitting posture, with its short tail cut in relief on the platform, its fore feet on the same plane with the body, and the head thrown forward in the attitude of contentment. The head is stout and short, with the color markings and whiskers very pronounced, and is somewhat enlarged and out of proportion to the body.

Fig. 28 shows the second sculpture of the wild cat. The pipe is made of dark blue-gray Ohio pipestone, stained to a very dark brown by iron, and is some larger than the pipe just described. The platform is three and one-half inches long, symmetrically curved from front to back, and square at each end. The animal is shown apparently crouched for a leap, but the reposeful attitude of the head seems to contradict this. The head markings are well executed and the whiskers somewhat emphasized.

Similar sculptures of the wild cat were found by Squier & Davis at the Mound City group, two of which they figure in their report. Comparing these with the Tremper mound specimens, especially as regards the heads, one would be led to believe that all were made by the same sculptor, so marked is the similarity.

In the prehistoric village sites at Baum's and Gartner's the wild cat's bones were found in abundance, thirty broken skulls and one hundred and twenty-five broken lower jaws being found in the former alone. The leg bones were used in making implements and ornaments and the canine teeth were perforated and used as ornaments.

EFFIGY OF THE PORCUPINE.

Fig. 29 shows the sculpture of the porcupine (*Erethizon dorsatus*). In this pipe the sculptor has fashioned the animal in a characteristic attitude, as seen at home in the woods. The head, with short bunt ears, is well sculptured, as is the thick heavy tail, with the spines plainly marked. The pipe is made



FIG. 27. Pipe in the Effigy of the Wild-Cat.



FIG. 28. Pipe in the Effigy of the Wild-Cat.

of red and light-gray mottled pipestone. The base is well curved, three and three-fourths inches long, three-fourths of an inch wide, square at the stem end and oval at the rear end.

As far as known this is the only sculpture of this animal from the mounds of Ohio. The geographical distribution of the Canadian porcupine in early days was along the Alleghanies, south through Pennsylvania into Virginia, west to Kentucky and north to the limit of trees in Canada; so that it certainly must have been well known to prehistoric man in the Scioto valley.

We have found the bones of the porcupine sparingly in the Baum Village site, a lower jaw and several small bones being



FIG. 29. Pipe Representing the Porcupine.

noted. Now that we have its sculpture and know that the Indian was acquainted with the animal, I am sure a careful search will bring to light more of its bones. However, it must be remembered that the Indian dog was very fond of bones, which may account for not finding many bones of some of the smaller animals.

EFFIGY OF THE OPOSSUM.

Fig. 30 is the sculpture of the Opossum (*Didelphys virginianus*). The sculptor has well portrayed the opossum and has shown something of its habits by picturing the animal inserting its foot into a hole in search of food. The seated pos-

ture is characteristic and the scaly tail is emphasized by criss-cross lines. The head, with its long nose and copper-set eyes, is well carved. The symmetrically curved platform is three and one-fourth inches long, one and one-half inches wide, square in front and ends in a graceful curve at the rear. The pipe is made of dark-gray Ohio pipestone.

The only other opossum effigy recorded, was taken from Mound No. 8, Mound City group, by Squier & Davis, who mention the animal in their list of sculptured pipes but do not



FIG. 30. Pipe Representing the Opossum.

figure it. The Blackmore Museum, which acquired the Mound City finds gives no cut of the opossum sculpture, probably being unable to restore the specimen. Consequently that shown in Fig. 30 is perhaps the only one of its kind in a perfect state taken from the mounds of Ohio.

The bones of the opossum were found in abundance at the Baum Village site along Paint Creek, and at the Gartner mound and village site along the Scioto. It is evident that this animal was much sought for food and that the upper canines,

which are unusually large, very long and gracefully curved, were highly prized for ornament.

EFFIGY OF THE BEAVER.

The beaver (*Castor canadensis*) shown in Fig. 31 is one of the best sculptured pipes taken from the cache of the Tremper mound. Other specimens of the beaver effigy pipes were found, made of a very low grade pipestone, so weathered that restoration was impossible. However, a beautiful effigy gorget, representing the beaver swimming in the water, was found in the cache.



FIG. 31. Pipe in the Effigy of the Beaver.

The effigy beaver shown in Fig. 31 represents the animal in a characteristic attitude, sitting on its tail. The primitive artist has brought out the proportions and the general form of the beaver, short between the fore and hind legs, broad, heavy and clumsy. The hind legs and feet, which furnish the propelling power for swimming, are well carved. The head markings, the bumpy ears and small eyes are characteristic of the beaver. The pipe is made of mottled yellow pipestone and is highly polished. The platform is three and one-fourth inches long and one and one-half inches wide.

Three beaver pipes were found by Squier & Davis in the Mound City group, Mound No. 8, one of which they describe

and figure, the Blackmore Museum catalog showing a cut of the same pipe. The Museum of the Ohio State Archeological & Historical Society has a very large perfect beaver pipe found in a mound in Fairfield county, Ohio, but this pipe was made by another culture of Indians and in no way compares to the sculpture of either the Tremper Mound effigies or those taken from the Mound City group.

The bones of the beaver were found in abundance at the Baum Village site and at the Gartner site, showing that this animal was used for food and that the incisor teeth were highly prized for ornament and for use as cutting tools. In the Museum of the Ohio State Archeological & Historical Society is displayed an implement made from the tine of a deer horn, with a large beaver incisor set at right angles to the horn, and evidently used as a cutting tool. The implement was taken from a mound at Portsmouth, only five miles from the Tremper mound.

EFFIGY OF THE DEER.

Fig. 32 is made in the image of the deer (*Odocoileus virginianus*). This sculptured pipe is the only one of its kind known to have been taken from the mounds of Ohio. It represents only the head of the animal, but is a very spirited and faithful representation. The animal is shown with head up,



FIG. 32. Pipe in the Effigy of the Deer.

nostrils open, as if scenting an enemy, and ears thrown forward as if to catch sound of the intruder. The pipe is made of dark-blue pipestone and the platform, which is conspicuously curved, is three and one-fourth inches long, one inch wide and slightly concavo-convex from front to back. The stem is square and the opposite end rounded.

The deer was eagerly sought for as food by prehistory man, as is evidenced by finding its remains in the various village sites examined. At the Baum village site fully thirty-five per cent of all animal bones were of the deer, while at the Gartner site fully fifty per cent of the bones found were of this animal. The large and heavy bones of the deer were used in making implements. So extensive was their use that a perfect lower leg bone is rarely found.

EFFIGY OF THE MINK.

Fig. 33 shows one of the more interesting of the effigy pipes taken from the Tremper Mound, the effigy being that of the mink (*Putorius vison*). The sculpture shows the characteristically long body of the animal wrapped around the top of the bowl of the pipe, with the head facing the smoker. This sculpture of the mink is the only one known to have been found



FIG. 33. Pipe in the Effigy of the Mink.

in the mounds of Ohio. The pipe is made of dark blue-gray pipestone and the platform is regularly curved from end to end, slightly concave on top and decidedly convex beneath. The stem end, which is one and one-fourth inches wide, is square and the other end rounded. The mink was well known to the dwellers in both the Baum Village site and the Gartner Village site, its bones being everywhere in evidence.

EFFIGY OF THE RABBIT.

Fig. 34 is a good representation of the rabbit (*Lepus sylvaticus*). The primitive artist has fashioned the animal in a characteristic attitude, sitting with ears erect and the very large eyes prominently shown. Sculptures of the rabbit are

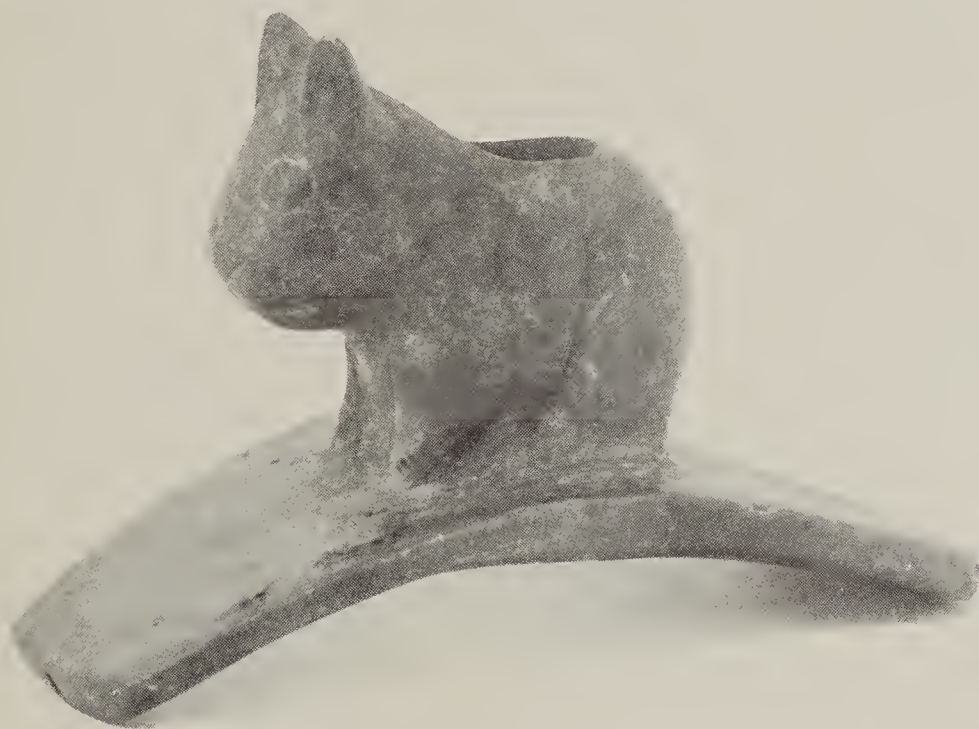


FIG. 34. Pipe in the Effigy of the Rabbit.

very uncommon. In the Shetrone collection of the Ohio State Archeological & Historical Society is a very large pipe in the image of the rabbit, found on the surface in Fairfield county, Ohio, but differing in culture from the pipes of the Tremper mound and the Mound City group. The bones of the rabbit were found at the Baum Village site and at the Gartner Vil-

lage site, showing that this little animal was highly prized for food. The bones, however, were seldom used in the making of implements.

SQUIRREL EFFIGY PIPES.

The gray squirrel (*Sciurus carolinensis*) was well known to prehistoric man, and in all the six sculptures found is portrayed in the familiar posture shown in Fig. 35. This pipe is spirited and admirably true to nature and perhaps the most



FIG. 35. Pipe in the Effigy of the Squirrel.

artistic of the squirrel effigies. It is made of light gray pipestone strongly marked with red, giving the specimen the appearance of marble. The platform is three and one-fourth inches long, flat on top, convex beneath, and regularly curved from front to back. The squirrel is carved around the bowl in an erect sitting posture, with the front feet held closely to the body, the head in the attitude of watchfulness and the bushy tail curled up over the back.

The second sculpture of the squirrel, shown in Fig. 36, closely resembles the one first described except that the hind



FIG. 36. Pipe in the Effigy of the Squirrel.

feet are not shown. These two specimens evidently are the work of the same artist, the minor details being the same and the stone from which they are cut very similar.

Fig. 37 represents another sculpture of the squirrel. A careful comparison with the other squirrel pipes shown, indicates the handiwork of a different artist. While the general pose is the same, the artistic conception of the animal is quite different, as is the fashioning of the tail and legs. The eyes are set with copper. The pipe is made of mottled yellow and dark pipestone. The base is regularly curved from front to back, is one inch wide and three and one-fourth inches long, flat on top and convex beneath. The remaining squirrel pipes are similar to those described and probably were made by the same sculptors.

Squier & Davis found the sculptured image of the squirrel in Mound No. 8, Mound City group, a cut of which is figured in the catalog of the Blackmore Museum. A careful study of the cut will convince one that the sculptor of the Mound City pipe had still a different conception of the squirrel; but his product differs no more from the individual sculptures of the

Tremper mound, than these latter do from one another. So far as known the squirrel pipes from the Tremper mound and the one from the Mound City group, are the only sculptures of the squirrel taken from the mounds of Ohio.

The skeletal remains of the squirrel are found in all the village sites examined. At the Baum and Gartner sites their bones were found in every part of the villages.



FIG. 37. Pipe in the Effigy of the Squirrel.

SCULPTURES OF THE TURTLE.

Snapping Turtle — Fig. 38 is a fine example of the sculpture of the snapping turtle (*Chelydra serpentina*). The turtle surmounts the bowl of the pipe, the opening of the bowl passing through the top of the shell. The markings of the shell are plainly indicated and the fore and hind legs, tail and head are well executed.

The pipe is made of yellow-brown pipestone, highly polished. The platform is well curved from front to back, three and one-half inches long, one and one-fourth inches wide, flat on top, convex beneath, and square at each end.



FIG. 38. Pipe in the Image of a Snapping Turtle.

Fig. 39, another carving of the snapping turtle, is the smallest pipe found in the Tremper mound. Another interesting feature of the pipe is that it has a double stem. However, the rear stem hole is closed by a bone, cut and well fitted to the hole for its entire length. The effigy of the turtle, like the one just described, forms the top of the bowl, and is well executed, though made from an inferior piece of pipe stone. The platform has a slight curve from front to back, is only two and one-half inches long, about one inch wide, flat on top and slightly convex on the bottom. The pipe is fashioned from a very dark pipestone.



FIG. 39. Pipe in the Image of a Snapping Turtle.

Box Turtle — Fig. 40 is a splendid example of the sculpture of the box turtle (*Cestudo virginea*). The specimen is made of light-red mottled pipestone. The platform is thickest along the median line from end to end and gradually tapers to the edges, forming a diamond shaped cross section. It is decidedly curved, four inches long, one and one-fourth inches wide and cut square at both ends. The turtle's shell, the markings of which are distinct, is partly open, exposing the head and feet.



FIG. 40. Pipe in the Image of the Box Turtle.

According to Squier & Davis, sculptures of the turtle were found in Mound No. 8, Mound City group, but they do not figure the turtle in their report. In the catalog of the Blackmore Museum is a drawing of a turtle pipe, which closely resembles Fig. 37 of the Tremper Mound. The turtle seems to have been a favorite motive for pipes with many of the prehistoric tribes, but we have no record of a platform effigy turtle pipe being taken from a mound in Ohio, other than those from the Tremper Mound and the Mound City group. The bones of the turtle, especially those of the box turtle, are abundant in all the prehistoric village sites of Ohio so far examined. At the Baum village, the turtle was found in abundance. From

one subterranean storehouse alone fifty-nine carapaces of the box turtle, probably representing a great turtle feast, were removed.

SCULPTURE OF THE TOAD.

Fig. 41 shows a splendid conception of the common toad. Many of the prehistoric cultures sculptured the toad and the frog, but the pipes of the Tremper mound and Mound City group are unique in producing the toad in the platform type of pipe. Pipe No. 41 has a platform four and one-half inches



FIG. 41. Pipe Representing the Toad.

long, and one inch wide at each end, expanding in the center to one and one-half inches. It is liberally curved from front to back, flat on top and convex beneath, to accommodate the large stem hole. The sculptor's conception of the toad is extremely good as far as general appearance and proportions are concerned, although some features of it might be considered exaggerated and others dwarfed.

Squier & Davis found in Mound No. 8 a sculptured toad, which is figured in their reports and in the catalog of the Blackmore Museum; but the one shown in Fig. 41 is very much superior in general execution. Many prehistoric tribes in Ohio sculptured the toad and examples may be found in the museum of the Society, but all are roughly carved and represent an entirely different culture from the Hopewell.

BIRD EFFIGY PIPES.

The bowls of many of the pipes from the Tremper Mound are carved with admirable skill into figures of birds of various kinds. As a whole these bird sculptures are fairly true to nature, many of them having the features and feather markings faithfully represented, while in some even the individual habits and peculiarities are portrayed.

More than twelve genera of birds have been recognized, and in one instance — the owls — six individual specimens, representing at least five species were found. Among the birds identified are the kingfisher, heron, sandhill crane, crow, paroquet, eagle, hawk, owl, quail and a song bird. I will describe at some length the bird sculptures found in the Tremper mound and compare them with those taken by Squier & Davis from Mound No. 8, Mound City group.

SCULPTURE OF THE EAGLE.

Fig. 42 is a fine representation of the eagle, carved out of coral limestone. The specimen is the largest bird in the lot, and the boldest as to sculptured treatment, tho now much weathered. The platform is four and three-fourths inches long but measures five and one-half inches around the curve from front to back. The cut fully illustrates this curve. The platform is one inch wide at each end, expanding to two inches at the center, the stem end being square and the rear end rounded. The platform is flat on top and decidedly convex beneath. The bowl rises from the summit of the curved platform, and around its top is carved the image of the eagle. The large beak, the heavy strong wings and the long tail of the bird are faithfully portrayed, but no feet or talons are shown. Several other carvings of the eagle were made from the same stone, but these were weathered so badly that their restoration was impossible. The bald eagle (*Haliaetus leucocephalus*) was known to the prehistory inhabitants of the Baum village site and at the Gartner village site, where their bones were found sparingly. The claws were used as ornaments and the large wing bones were made into implements or ornaments.



FIG. 42. Pipe in the Effigy of the Eagle.

A pipe fashioned in the image of the eagle was taken from mound No. 8, Mound City group, but only the head is figured, the remainder of the pipe evidently not having been secured. The catalog of the Blackmore Museum figures this head and says "Fig. 59 is the fragment of a pipe which represents a bird of prey, either an eagle or a hawk."

EFFIGIES OF THE HAWK.

The hawk seems to have greatly interested primitive man, as he made many sculptures thereof, representing several species. The general form of the hawk and eagle is the same, and perhaps the only distinction between them, as made by primitive man, was that of size.

One of the best of the hawk sculptures is shown in Fig. 43. The pipe is made of brown pipestone, the stem four and one-half inches long, one and one-half inches broad at each end and gracefully curved from front to back. The legs and feet of the bird are faintly carved, but the body, which forms the top of the bowl, is boldly executed. The eyes evidently had been set with pearls but these were lost. The feather markings on the body and head are very pronounced and the general pose of the bird is not excelled in any of the carvings.

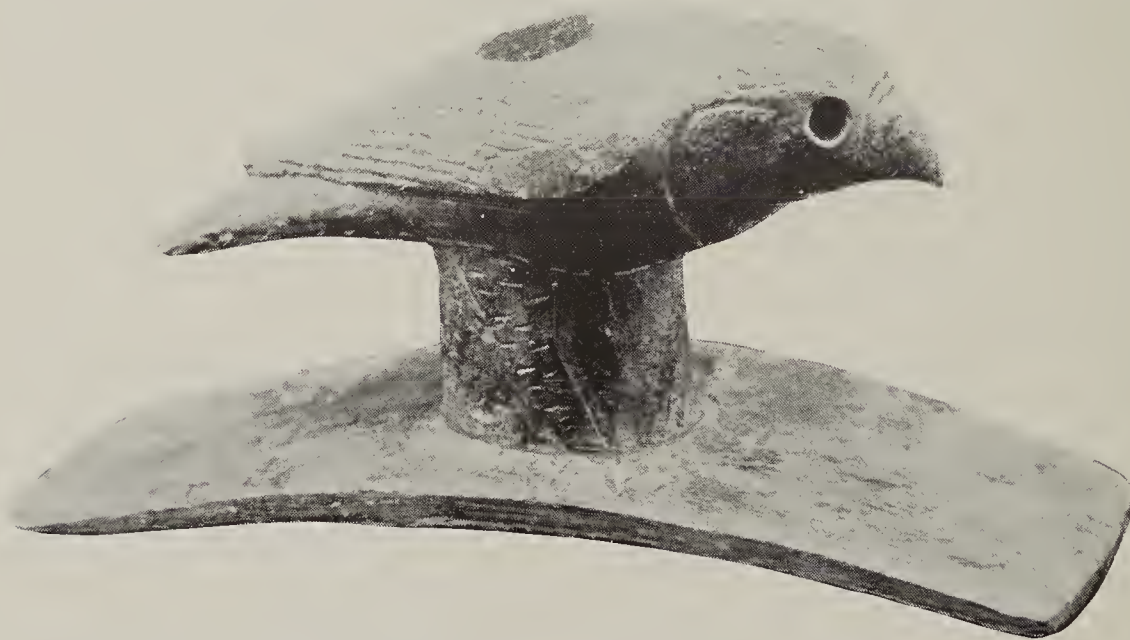


FIG. 43. Pipe in the Effigy of the Hawk.

The pipe shown in Fig. 44 is unusually well carved and represents the hawk in the attitude of viewing its surroundings. The pipe is made of gray pipestone somewhat discolored by the salts of iron. The platform is a little more than three and one-half inches long, one and one-half inches wide, and regularly concave beneath. The feet and talons are well carved and somewhat emphasized. The color markings on the head are very distinct and the eyes are set with copper. The feather



FIG. 44. Pipe in the Effigy of the Hawk.

markings of the wings and back are carved very true to nature. This pipe was found in the second cache two and one-half feet above the floor of the mound.

Fig. 45 is a splendid illustration of the sculpture of the hawk. The specimen is complete with the exception of the right foot, and is the only sculptured piece having the effigy carved at right angles to the stem, as in all other sculptures the effigy faces the smoker and is parallel with the stem. This specimen shows the skillful method of the owner of mending the pipe, the bowl of which had been broken off near the stem while in use. Small holes were drilled contiguously into the

fractured edges, and dowel pins then inserted to unite the parts. The platform of the pipe is but slightly curved and measures three inches in length and a little more than one inch wide. It is flat beneath, which is quite unusual in the effigy pipes, and convex on top. The work of the artist, in bringing out the feather markings of the bird, is unusually good. The eyes are set with pearls.

Squier & Davis found in Mound No. 8, Mound City group, the figure of the otter set at right angles to the stem, which



FIG. 45. Pipe in the Effigy of the Hawk.

is the only known specimen other than the Tremper mound hawk pipe, having the effigy placed crosswise of the platform.

Several other specimens of the hawk were found in the larger cache, but these were made of an inferior quality of pipe-stone, so badly weathered that restoration was impossible. Squier & Davis found a splendid example of the hawk effigy in Mound No. 8, Mound City group, the general appearance of which, according to their drawing, would indicate the same species of hawk as shown in Fig. 44 of the Tremper mound, although differing in posture. The Squier & Davis hawk is shown devouring a small bird held in its talons. Unfortunately

a part of the stem of this pipe was not found, but at the Blackmore Museum it was fully restored, and a cut thereof shown in Fig. 60 of their catalog.

Sculptured pipes of the hawk are very rare in Ohio especially in the platform type, the only ones recorded being those from Mound City and the Tremper Mound. No record of the finding of the bones of the hawk at the Baum village was made at the time the report was published, but a closer examination of the skeletal remains in the laboratory disclosed quite a number of the bones of the species *Buteo borealis*, or common red-shouldered hawk. Prehistoric man doubtless would find the hawk, like the eagle, very difficult to capture and consequently its bones would be sparingly found; moreover, most of the bones would be made into ornaments or implements, and on account of their small size, the domesticated dog would devour many of the remainder.

SCULPTURE OF THE PAROQUET.

Fig. 46 is a very good sculpture of the Carolina paroquet, which no doubt attracted aboriginal man of the Scioto valley, where it formerly was common, but is now extinct. The sculp-



FIG. 46. Pipe in the Effigy of the Paroquet.

ture shown is a fine conception of this beautiful bird. The artist fully portrays its keen eyes by a setting of pearls, and the head and body markings are well executed. Its head is turned upward, showing the inquisitive character of the bird. The stem, which is gracefully curved, and the tail, were slightly broken and repaired by the owner. The paroquet was found also by Squier & Davis in Mound No. 8, Mound City group. They state that the paroquet is sometimes seen fifty miles above the mouth of the Scioto (1846), and we have a very authentic record* made by Dr. William S. Sullivant, in July, 1862, of a boisterous flock of paroquets, numbering twenty-five or thirty individuals, in the elms of the Capitol Square, Columbus.

OWL EFFIGY PIPES.

Pipes made in the image of the owl were found in larger numbers than that of any other of the birds, five species being represented in a total of six specimens. The great horned owl (*Bubo virginianus*) particularly seems to have attracted the attention of the primitive sculptors, this species being represented by two pipes, the conceptions of two individual artists.

Great Horned Owl.—Fig. 47 shows the larger of the two horned owl pipes. It is made of light yellow-gray pipestone. The platform is four and one-half inches long and a little less than one inch wide at each end, expanding at the center, where it is more than one and one-half inches wide. It is decidedly convex beneath, with a central ridge extending from front to back, while its upper surface also is convex, thus making a cross section of the stem diamond shaped. The bowl of this pipe is unusually large and the opening is directly on top of the head.

While this specimen in many respects shows a good conception of the great horned owl, the pipe shown in Fig. 48 is the most elaborately carved of the image pipes. The photograph as shown in Fig. 48 does not do justice to the detailed markings of the specimen. The head, very carefully executed, is thrown forward, the orifice of the bowl being at the shoulders

* The Birds of Ohio, by Dawson; page 371.

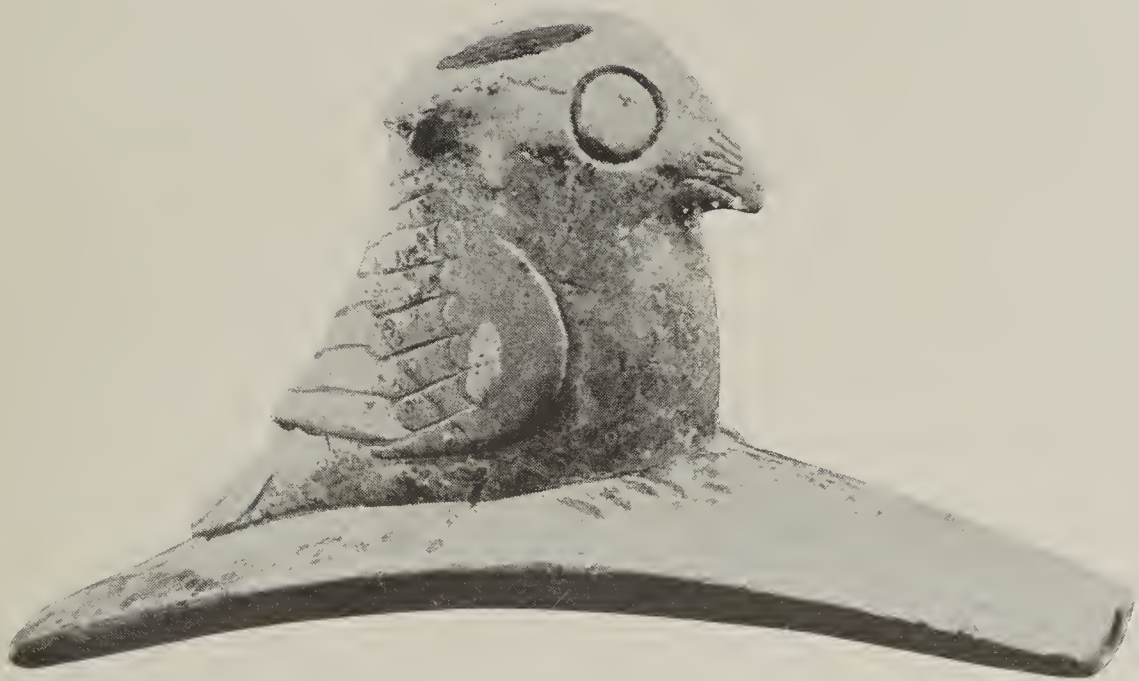


FIG. 47. Pipe in the Image of the Great Horned Owl.



FIG. 48. Pipe in the Image of the Great Horned Owl.

and neck of the bird. The pipe is made of dark gray pipestone, and the platform is three and one-half inches long, one and one-fourth inches wide, flat on top, convex beneath and squared at each end. The artist's conception is well rendered, both as to general proportions and varied details of finish.

The Barred Owl. (*Syrnium varium*) shown in Fig. 49 is a faithful representation of the hoot-owl, as this species is popularly known. In this specimen the primitive artist has



FIG. 49. Pipe in the Image of the Barred Owl.

brought out the habits and appearance of the owl, by sculpturing the bird as facing to the rear, and emphasizing its eyes by the insertion of large pearls. The feather markings, especially in the wings and tail, are very prominent. The platform, which is unusually large, is four and one-half inches long and one and one-fourth inches wide at each end. The front or stem end is squared while the rear end is oval. The pipe is made of light gray pipestone slightly stained with iron.

American Long-eared Owl.—A spirited sculpture of the American long-eared owl (*Asis wilsonianus*) is shown in Fig.

50. In this specimen, the artist has successfully portrayed certain characteristic marks, such as size and leg markings, and the long horns extending back over the head. The feather markings on wings and back are executed with skill. The pipe is small and made of gray pipestone mottled with red. The platform is three and one-fourth inches long and three-fourths of an inch wide, finely curved from end to end, flat on top and convex beneath. The base is squared at each end.



FIG. 50. Pipe in the Image of the American Long-Eared Owl.

Saw-whet Owl.—Fig. 51 is a very good sculpture of the saw-whet owl (*Myctale acadica*). This little owl has no ear tufts, and is readily distinguished from the screech owl by this characteristic. This pipe was broken by the owner, and mended by a band of copper fully covering the entire stem end of the platform. The eyes are emphasized by the insertion of pearls. The pipe is made of light yellow-gray pipestone. The platform is only two and three-fourths inches long, square at the stem end and oval at the rear. The base is flat above and curved below.

Screech Owl.—Fig. 52 shows the sculpture of the screech owl (*Megascaro asis*). The appearance of this bird is well



FIG. 51. Pipe in the Image of the Saw-Whet Owl.



FIG. 52. Pipe in the Image of the Screech Owl.

portrayed, with the exception of the ear tufts, which are precluded by the opening of the bowl of the pipe, occupying the entire top of the head. However, the general features of the species are well marked. The platform is well curved from front to back and is three and one-fourth inches long by one and one-fourth inches wide, with the usual convex form beneath. The stem end of the base is squared and the rear end rounded.

Squier & Davis in their account of the exploration of the Mound City group mention the owl as one of the sculptures taken from this group, but give no cut thereof. In the catalog of the Blackmore museum a pipe is shown in Fig. 57, which I infer, from the general pose and appearance, represents the little saw-whet owl. The owl seems to have been a favorite with many of the aboriginal tribes, as many owl pipes have been found on the surface and in mounds, but belonging to cultures differing from those represented in the Tremper mound and at Mound City. Those from the Tremper mound stand alone, when artistic conception and execution are taken into consideration. The bones of the great horned owl and the barred owl were found at the Baum village site and also at the Gartner site. They are never abundant in the villages because, for the most part, they were manufactured into ornaments and implements.

SCULPTURE OF THE GREAT BLUE HERON.

The great blue heron shown in Fig. 53 is one of the finest of the bird sculptures. The bird, with its small body, long wings, neck and legs, is represented in the act of eating a fish. The artist's work is excellent, both as to conception of the bird and its habits, and in the faithful and delicate execution thereof. As a work of art it is the equal of any of the sculptures taken from the mounds of Ohio. The pipe is made of dark gray pipestone. The platform is strongly curved from front to back, flat on top and convex beneath, square at each end, with rounded corners, and is three and one-half inches long and one and one-fourth inches wide.

This specimen and a similar one found by Squier and Davis in Mound No. 8, Mound City group and illustrated in

their report, are the only ones of the kind found in the mounds of Ohio. No feather markings, and only the outlines of the wings and tail, are shown in the Mound City pipes. The platform is but slightly curved and like the specimen from the Tremper mound, square at each end. In the catalog of the Blackmore Museum a drawing of this specimen shows the plat-



FIG. 53. Pipe in the Effigy of the Great Blue Heron.

form as straight and the stem end squared, but the rear end is shown as an oval. Bones of the great blue heron were found sparingly at the Baum village site. These consisted of the ends of long bones, which had been cut and utilized for ornaments.

SCULPTURE OF THE SAND-HILL CRANE.

The only sculpture of the sand-hill crane taken from the mounds of Ohio is shown in Fig. 54. Like the great blue heron, just described, this sculpture of the crane stands alone in its class. The artist's conception is well portrayed in the splendid feather markings of the wings and tail, in the long neck and head, and in showing the habit of the bird in using its strong bill for digging in the earth in search of food.

A unique feature of this pipe is the red crest on the head of the bird, painted at the time it was made, and retaining its color unfaded. The keen eyes of the bird are set with copper and its whole appearance is pleasing and true to nature. The pipe is made of dark gray pipestone. The platform is gracefully curved from front to back and is three and three-fourths



FIG. 54. Pipe in the Effigy of the Sandhill Crane.

inches long, one and one-fourth inches wide and square at each end.

The skeletal remains of the sand-hill crane were not recorded at the Baum village or at the Gartner village, but a later examination of the cut ends of leg bones taken from the latter site, fully identified the bird as being present in this village. However, the bones of such birds as the crane and blue heron were well adapted for use as ornaments and implements, and therefore seldom are found in a perfect state, being usually worked into artifacts.

WILD DUCK EFFIGY PIPES.

Wood Duck.—An effigy of the wood duck is shown in Fig. 55, a notable example of primitive sculpture. One cannot wonder that early man was attracted to the wood duck, for few more beautiful birds are found. The head only of this bird is represented, on which are well defined the prominent crest and the color markings, while the eyes are emphasized by the insertion of copper. The pipe is made of dark blue pipestone. The platform, which is slightly curved from front to back, is three and one-fourth inches long and one inch wide, flat on top



FIG. 55. Pipe in the Effigy of the Wood Duck.

and convex beneath. Squier & Davis found in Mound No. 8, Mound City group, a pipe similar in many respects to this one, but inferior in form and finish, as will be seen by reference to their cut.

Bufflehead.—Fig. 56 is a very good example of the butter ball, as this duck is often popularly called. I feel sure that a characteristic peculiar to this duck must have strongly impressed primitive man; namely, that while swimming on the water, it has the appearance of floating in the air. This illusion is due to the white breast and sides, intervening between the

black upper parts of the bird and the water line below. The pipe is made of dark gray pipestone and the platform is three and one-half inches long and one inch wide. It is regularly curved from front to back, flat on top, convex beneath, the front end square and the back end oval.

Bones of the two ducks described were not found at the Baum village site, but the mallard, pintail and canvas-back were identified.



FIG. 56. Pipe in the Effigy of the Bufflehead Duck.

SCULPTURE OF THE QUAIL.

The effigy of the bobwhite is shown in Fig. 57, and as far as known is the only one taken from the mounds of Ohio. The pipe is made of dark brown pipestone, highly polished. The platform is three inches long and one inch wide, the front concavo-convex and the rear flat on top and convex beneath. The pipe had been broken by the owner and repaired by placing a heavy band of copper around the bowl, as shown in the photograph. The conception of the primitive artist is well brought out in the general pose and feather markings of this sculpture, which might be considered one of the most spirited and skillfully carved of the effigies. The bones of the quail have not been recorded as found in any of the prehistoric village sites



FIG. 57. Pipe in the Effigy of the Bob-White.

in Ohio, they doubtless, like other bones of small size, mostly having been eaten by the Indian dog.

EFFIGY OF THE KINGFISHER.

Fig. 58 shows a pipe in the image of the kingfisher. The pipe is carved from dark brown pipestone, the platform being three inches long and one inch wide, and gradually curved from front to back. The long bill, crested head and feather markings illustrate fully the primitive artist's conception of this bird. The eyes are set with pearls. This sculpture of the kingfisher is perhaps the only known specimen taken from the mounds of Ohio.

EFFIGY OF THE BLUE JAY.

The image of the blue jay is shown in Fig. 59. The artist's conception is not as good as in the kingfisher and bobwhite. The eyes no doubt were set with pearls, which were lost. The pipe is made of reddish brown pipestone, the platform three and one-fourth inches long, one inch wide, and curved gradually from end to end. No other account of the sculpture of the blue jay is recorded as coming from the mounds of Ohio.



FIG. 58. Pipe in the Effigy of the Kingfisher.

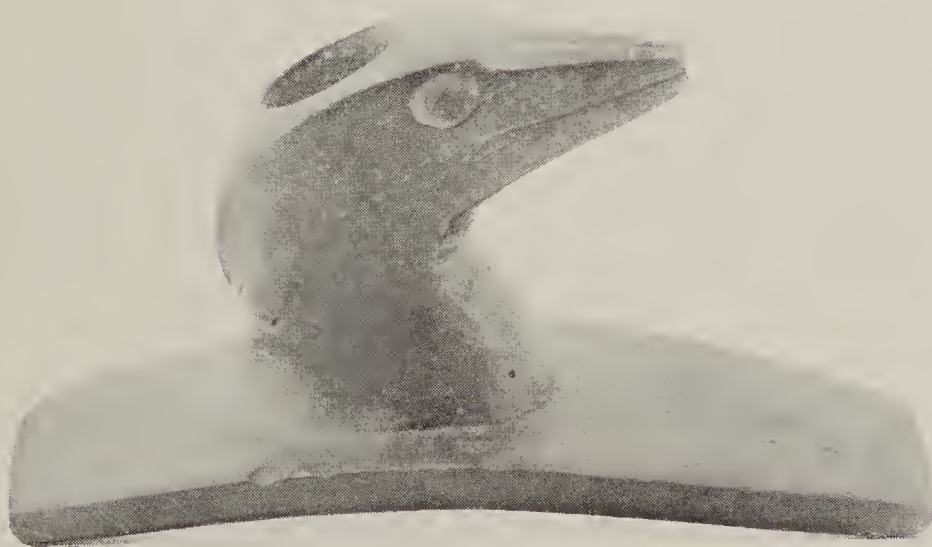


FIG. 59. Pipe in the Effigy of the Bluejay.

SCULPTURE OF THE AMERICAN CROW.

The crow is shown in Fig. 60. Like the pipe just described, the head only is shown, the artist having somewhat emphasized the bill. The eye sockets are cut through into the opening of the bowl. A similar pipe was found by Squier



FIG. 60. Pipe in the Image of the American Crow.

& Davis in Mound No. 8, Mound City group, which they figure and describe. The same is figured in the catalog of the Blackmore Museum. So far as known, this pipe and the one from the Tremper Mound are the only effigies of the American crow taken from the mounds of Ohio.

EFFIGY OF A SONG BIRD.

Fig. 61 no doubt represents some species of song bird. The wing markings are well executed but the weathered condition of the pipe makes it impossible to determine the kind of bird intended. The pipe certainly was highly prized, as the bowl, which had been broken off, was mended at considerable trouble, by drilling holes and inserting dowel pins, as can be seen in the picture.

Many more sculptures of birds of various kinds were taken from this mound, as shown by the fragments of broken pipes made from an inferior quality of pipestone, too badly disintegrated to restore.



FIG. 61. Pipe in the Effigy of a Song Bird.

PLAIN PLATFORM PIPES.

The plain platform pipes taken from the Tremper Mound are very interesting. They were associated with the effigy pipes, and as far as the platform is concerned are, with the exception of the several specimens made of red pipestone, exactly like them. These latter, while of the platform type, have the bowls much larger and display a greater variation in curve of stem, some being practically straight, some slightly curved and others extremely curved. The small plain platform type resembles the effigy pipes in every way, except that the bowls are usually plain. Various forms of the plain pipes are shown in Figs. 62 to 76, inclusive; and these may be considered as representative of all the pipes of this type found.

Fig. 62 shows the first pipe taken from the mound and the first specimen of the several hundred comprising the main cache.

It is made of dark brown pipestone, with a platform three inches long and two inches wide. The bowl is enlarged at the base, then contracted to near the top, where it is again enlarged and symmetrically formed. This specimen is one of the more interesting of the plain pipes.



FIG. 62. Platform Pipe. The First Pipe Removed from the Mound.

Fig. 63 is a beautiful pipe made of light gray pipestone, varied by dark red splotches. The platform is gracefully curved from end to end, is three inches long and one inch wide. The pipe is unique, in that the base of the bowl is embellished with four leaf-shaped or petaloid bosses carved in relief around its circumference.



FIG. 63. Platform Pipe Made of Gray Pipestone.

Fig. 64 is one of the more striking pipes of the plain type. The base is greatly curved, concavo-convex and squared in front, where it is one and one-fourth inches wide. This platform is



FIG. 64. Platform Pipe with Concavo-Convex Stem.

enlarged gradually to the center, where the width is two inches, and terminates in a perfect oval in the rear. The bowl is cylindrical in form with an enlarged base and top.

Fig. 65 is a pipe made of light brown pipestone. The platform is symmetrically curved, squared at each end, four inches long and one inch wide at the ends, gradually expanding to one and three-fourths inches at the center, where the curve assumes the form of an angle. The bowl, rising from the center of the curved platform, is very symmetrical with enlarged top and base.

Fig. 66 shows a pipe made of very dark reddish-brown pipestone. The platform is three and one-half inches long and one and one-half inches wide, concavo-convex, curving gradually from end to end. The bowl is cylindrical, with enlarged top and base.



FIG. 65. Platform Pipe Made of Light Brown Pipestone.



FIG. 66. Platform Pipe Made of Reddish Brown Pipestone.

Fig. 67 is a very symmetrical and beautiful pipe made of drab pipestone, mottled with dark brown. The platform is three and one-eighth inches long, three-fourths of an inch wide and square at each end. The bowl has enlarged base and top.



FIG. 67. Platform Pipe Made of Dark Red Pipestone.

Fig. 68 is a showy pipe of very light buff-colored pipestone, with pronounced splotches of dark brownish red. The pipe is unusually large for this type and the platform is slightly concavo-convex with bowl enlarged at the base and top.



FIG. 68. Platform Pipe Made of Buff Colored Pipestone.

Fig. 69 shows a fine example of plain platform pipe. It is made from very dark brownish-yellow pipestone. The platform is three and one-half inches long, square at each end and concavo-convex in cross section. The bowl is unusually long, enlarged at the base and top.



FIG. 69. Platform Pipe Made of Brownish Yellow Pipestone.

Fig. 70 shows a very impressive pipe made of dark gray pipestone. The platform is convex on both top and bottom,



FIG. 70. Platform Pipe Made of Dark Gray Pipestone.

square at each end and has a very symmetrical curve. The bowl is very unusual, being smallest at the base, where it is embellished with two rings, encircling it in relief. Above the rings the bowl gradually enlarges to the top, giving it the form of a funnel.

Fig. 71 shows another pipe of special interest. It is made of dark gray pipestone, the stem, which is concavo-convex, being three inches long and one and one-fourth inches wide, squared at both ends. The bowl is enlarged at the top, but not at the base.



FIG. 71. Platform Pipe with Concavo-Convex Stem, Made of Dark Gray Pipestone.

Fig. 72 is a very unique pipe having two stems. It is made of light gray pipestone, the platform being three inches long, flat on top, decidedly convex beneath and square at each end. Two stem holes lead to the bowl of the pipe, one from each end of the platform. The bowl has an enlarged base, while its top is not enlarged, in this respect differing from most of the pipes of the plain type.

Fig. 73 is remarkable as an example of an extremely curved platform, which is three and one-fourth inches long, with square ends, convex beneath and flat on top. The bowl is enlarged at the base and top.



FIG. 72. Platform Pipe Made of Light Gray Pipestone.



FIG. 73. Platform Pipe with Extreme Curve.

Fig. 74 shows a very interesting diamond-shaped platform, which is three inches long, gradually tapering to each end, where it is only three-fourths of an inch across. The bowl is about the same size from its opening on top to near the base, where it is greatly enlarged.

Fig. 75 is a very interesting pipe with short, highly curved platform, two and three-fourths inches long, having square ends and being convex above and beneath. The bowl is enlarged at the top and base.



FIG. 74. Platform Pipe, Diamond-Shaped Stem.



FIG. 75. Platform Pipe, Highly Curved Stem.

Fig. 76 is a typical pipe with a curved platform, three and one-half inches long, slightly concavo-convex and square at each end. The bowl is enlarged at the top and base.



FIG. 76. Platform Pipe with Concavo-Convex Stem.

PLAIN PIPES OF RED PIPESTONE.

The pipes shown in Figs. 77 to 86, inclusive, are made of red pipestone. They differ somewhat in size from the plain pipes just described, being mostly much larger, and all have large bowls. Of the platforms, some are straight and some slightly curved, while one is greatly curved.

Fig. 77 shows the finest and largest pipe taken from the mound. This pipe was taken from the second cache, in a perfect condition. The platform is seven and three-fourths inches long, and slightly curved from front to back, where it is one and three-fourths inches wide, flat on the bottom and slightly convex on top. The stem end of the pipe is one and one-fourth inches wide, flat on the bottom and greatly convex on top, to accommodate the stem hole. The bowl of the pipe is exceptionally large, rising five and one-half inches above the platform. The body of the bowl at the base is a little over one inch in diameter, gradually diminishing to within one inch of the top, where it

PLATE I. Large Platform Pipe Made of Red Ohio Pipestone. (Full Size.)

PLATE I. Large Platform Pipe Made of red (hard) pipestone. (Full size.)





FIG. 77. Platform Pipe—the Largest Pipe Taken from the Cache. $\frac{1}{4}$.

expands, forming a rim with a diameter of one and three-eighths inches. The diameter of the opening of the bowl is seven-eighths of an inch.

Fig. 78 shows another very large and beautiful pipe, taken from the second cache in the mound. This pipe is made of very light red pipestone, streaked with dark red. The platform is eight and one-fourth inches long, gradually curved from front to back, where the stem is one and one-half inches wide and cut square. The platform is decorated with notches, about one-eighth of an inch apart, around its edges, with the exception of the front of the stem, which is contracted to three-fourths of an inch in width. The stem end at the opening is slightly convex beneath and greatly convex above, this proportion being continued to the bowl of the pipe. The bowl which is four and one-



FIG. 78. Platform Pipe—the Next Largest Pipe Taken from the Cache. $\frac{1}{4}$.

half inches high, measures in circumference as follows: At the base, three and one-fourth inches; at two inches above the base, three and three-fourths inches; within one-fourth of an inch of the top, three inches, and at the top three and one-half inches, the same as at the base.

Fig. 79 shows a pipe of remarkable beauty and symmetry, made of light red pipestone, with a streak of dark red running thru the specimen in its longest diameter. The platform is slightly curved from front to back, and is a little more than six inches long, being three-fourths of an inch wide in front, one and one-fourth inches wide at the rear end, flat beneath and convex on top. The bowl is three and one-half inches long, with a circumference of three and one-half inches near the base, where a cross section is oval. At the center, the circumference is four inches, decreasing to three and three-fourths inches within one-half inch of the top, while the top is enlarged to four and one-fourth inches in circumference. The diameter of the opening of the bowl is seven-eighths of an inch.

PLATE II. Large Pipe with Decorated Platform. Made of Light Red Pipestone
Streaked with Dark Red. (Full Size.)

Figure 11. Large Pipe with Decorated Platform. Blade of Light Red Pipe-stone
Streaked with Dark Red. (Full Size)

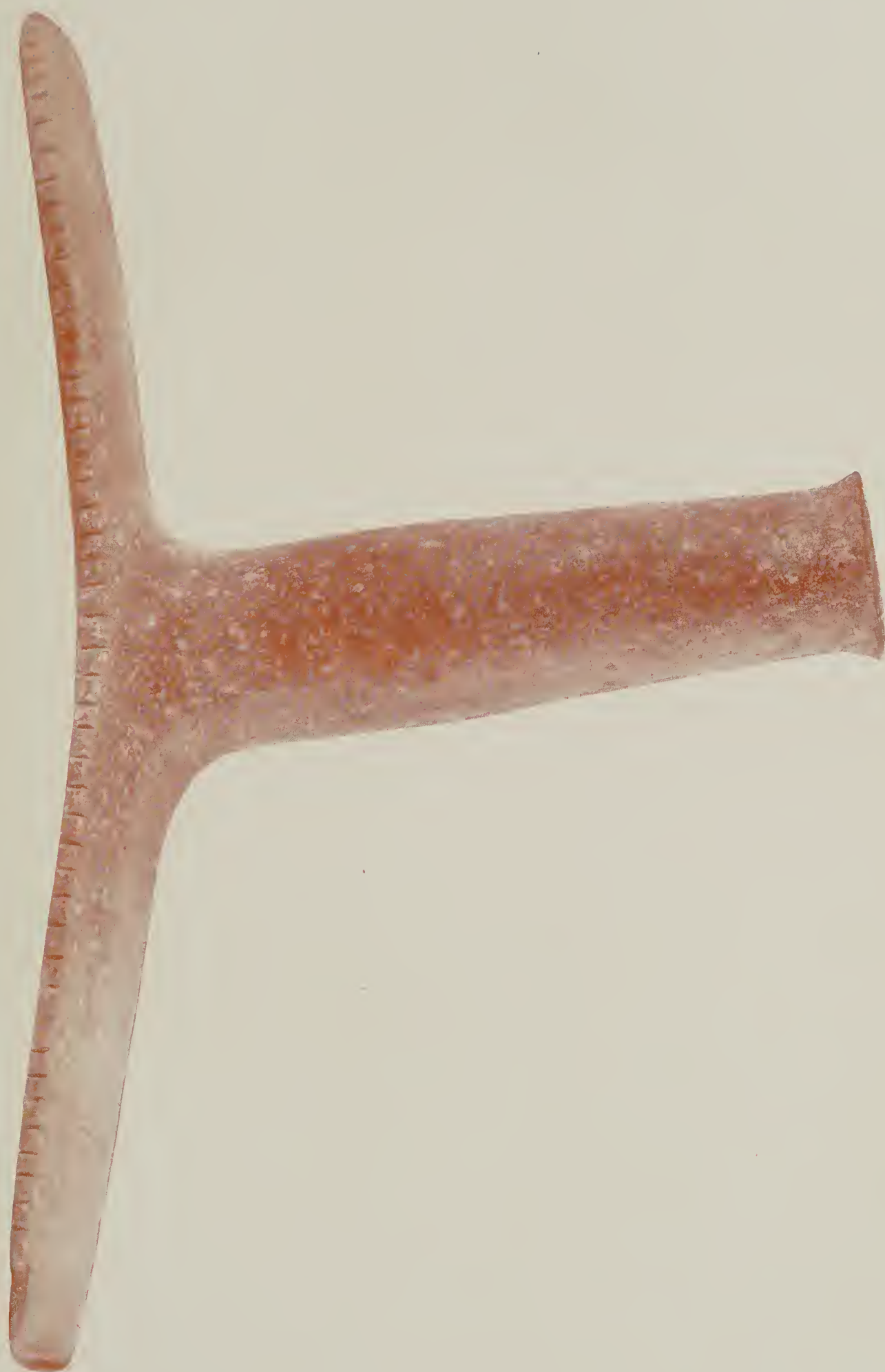




FIG. 79. Platform Pipe Made of Light Red Pipestone. $\frac{1}{3}$.



FIG. 80. Platform Pipe Made of Dark Red Pipestone. $\frac{1}{3}$.

Fig. 80 shows a well proportioned symmetrical pipe, made of dark red pipestone variegated with small oval blotches of light red. The stem is six and one-fourth inches long, well curved, and one and one-fourth inches wide at the ends, which are square. The stem in cross section is convex above and below. The bowl is four inches high with a base circumference of three and one-fourth inches. At the middle of the bowl the circumference is three and three-fourths inches; near the top, three and one-fourth inches, and at the top four inches. The diameter of the opening of the bowl is three-fourths of an inch.

Fig. 81 shows a splendid pipe of dark red pipestone, with an unusually long stem. The platform is six and seven-eighths



FIG. 81. Platform Pipe Made of Dark Red Pipestone. $\frac{3}{8}$.

inches long, one and one-fourth inches wide, squares at each end and flat beneath, with practically no curve from end to end. The stem end is convex above. The bowl of the pipe is two and one-half inches high, with practically the same diameter thruout its length, the top being three inches in circumference. The diameter of the opening of the bowl is five-eighths of an inch.

Fig. 82 shows a very fine pipe made of dark red pipestone, streaked with light red. The platform, which is perfectly straight, is five inches long, one and one-half inches wide at the rear end, gradually tapering to the front, where the stem is a little less than one inch wide. The top of the stem is convex. The bowl of

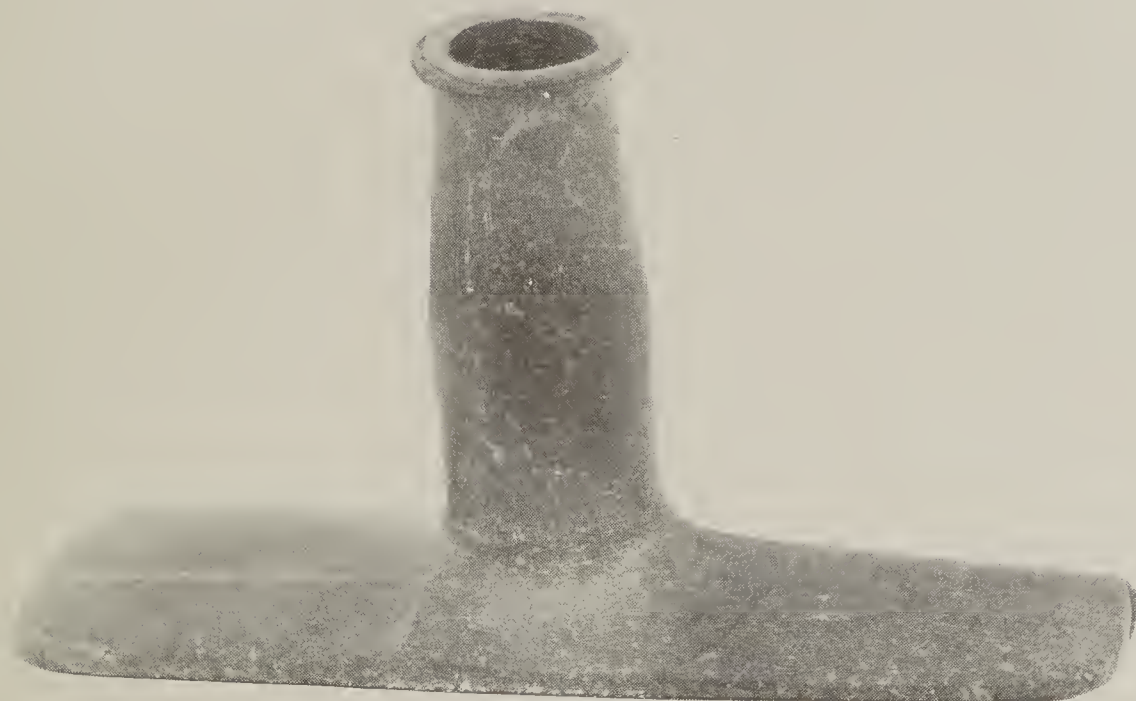


FIG. 82. Platform Pipe Made of Dark Red Pipestone. $\frac{1}{3}$.



FIG. 83. Platform Pipe Made of Dark Red Pipestone. Decorated. $\frac{1}{3}$.

the pipe is two and three-fourths inches high, oval at the base, enlarged at the center, with the opening of the bowl a little more than five-eighths of an inch in diameter.

Fig. 83 shows a very wide-stemmed pipe, made of dark red pipestone. The platform is flat, five and one-half inches long and one and one-half inches wide at the rear end, gradually tapering to the front of the stem, where it is only one-half inch wide. The stem is strongly convex on top to accommodate the stem hole. On top of the platform at the rear is incised a heart-shaped design, and directly below it four small pear-shaped decorations, the five figures being elaborated with criss-cross



FIG. 84. Platform Pipe Made of Dark Red Pipestone.

lines. The bowl is small, only one and three-fourths inches high, with the same diameter thruout. The top is greatly enlarged having a diameter of one and one-fourth inches, the bowl opening being five-eighths of an inch across.

Fig. 84 shows a very symmetrical pipe made of dark red pipestone. The platform is four and one-half inches long and one inch wide at the rear gradually tapering to the front or stem end, where the width is five-eighths of an inch. The platform is slightly curved and is diamond-shaped on cross section. The bowl is one and one-half inches high and is practically the same



FIG. 85. Platform Pipe Decorated With Zigzag Lines.

diameter thruout its length. The diameter of the opening of the bowl is five-eighths of an inch.

Fig. 85 is one of the more symmetrical of the pipes made of red pipestone. The pipe is decorated with incised zigzag lines, which on the bowl are vertical from top to base. On the platform top the lines run at right angles to its length, while beneath they are similarly placed on one-half of the platform, and parallel to it on the other half. The platform is gracefully curved from end to end, square at each end, flat on top and convex beneath. The bowl is two and one-half inches high, its greatest diameter being at the base, with a gradually expanded top. The bowl opening has a diameter of five-eighths of an inch.

Fig. 86 is one of the most beautiful and symmetrical of the pipes taken from the Tremper mound. It is made of light red pipestone. The platform is slightly concavo-convex, square in front and circular in the rear, five and one-fourth inches long on a straight line, but following the curve, six inches. The bowl



FIG. 86. Platform Pipe, Highly Curved. $\frac{1}{3}$.

is two inches high, very large at the base and gradually tapering to the top, where it is abruptly enlarged to a diameter of more than one inch. The opening in the bowl is five-eighths of an inch across.

TUBULAR TYPE OF PIPES.

Three pipes of the tubular form were found in cache No. 2. These are shown in Figs. 87, 88 and 89, and differ greatly from the pipes of the platform type.

Fig. 87 shows the largest of the plain tube pipes, which measures nine and one-fourth inches in length, and four inches in circumference at the center. The pipe is made of light gray pipestone, mottled with brown, blue, black and yellow. The diameter of the opening of the bowl is one inch, this being retained for six inches of the length of the bowl, which then gradually diminishes until at the stem opening it is three-eighths of an inch.

Fig. 88 shows the other plain tubular form. The pipe is

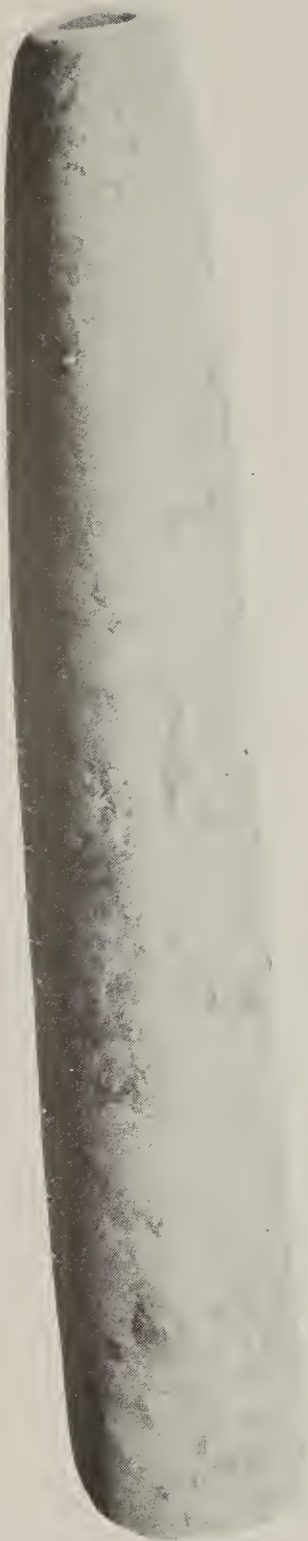


FIG. 87. Large Tube Pipe, Nine and One-fourth Inches Long.

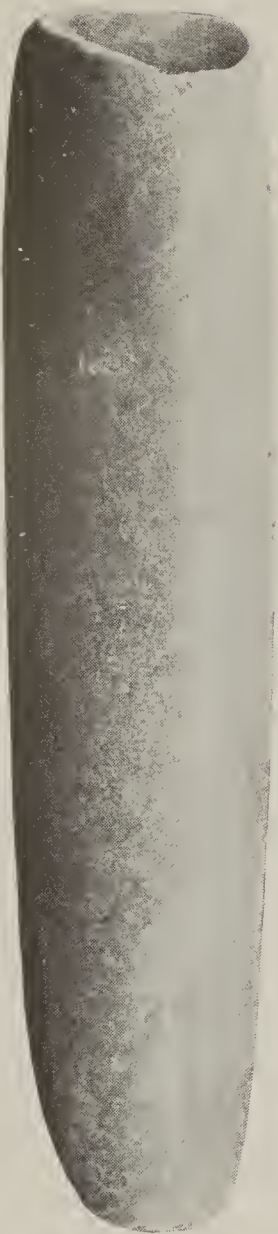


FIG. 88. Large Tube Pipe, Seven and One-half Inches Long.

made of light gray pipestone, is seven and one-half inches long and five inches in circumference at the center of the tube. The opening of the bowl is one and one-eighth inches in diameter this measurement being retained thruout almost the length of the tube. The stem hole is one-fourth of an inch in diameter.

Fig. 89 is one of the more interesting of the pipes taken from the Tremper mound and might be termed a modified tubular form. This form, with a short stem set at right angles to the long bowl, has been met with frequently in the Scioto valley, especially in Franklin county. In the collection of Mr. George F. Bareis, now in the Museum, is a pipe taken from a mound near Canal Winchester, Ohio, similar in every respect to the Tremper mound pipe. In the collection of Mr. M. E. Thrailkill, in the Museum, is another pipe, from a small mound along Big Darby creek in Franklin County, similar to the two above described. The Museum has several found on the surface along the Scioto river in Pickaway county.

The presence in the Tremper mound of a pipe of the modified tubular form—the first of this type, so far as known, to be found in a mound of the Hopewell culture — is an interesting example of the occasional possession by one culture of artifacts peculiarly pertinent to another culture. As has been shown, the modified tube form of pipe is widely distributed, but apparently peculiar to the Fort Ancient culture; it is interesting also to note that almost without exception they are made of fine grained sandstone, and both in material and form so similar as to suggest their being the product of a single artisan.

The tubular form proper of pipe also might be considered a Fort Ancient type, although not so certainly as the modified tube type, as it has been found to some extent in the Adena mound and other mounds of the Hopewell culture, aside from the fine specimens taken from the Tremper mound. The explanation, of course, of the finding of types of one culture in the mounds of another, is the inter-tribal commerce, or exchange of commodities, which existed between contemporaneous peoples living contiguously.

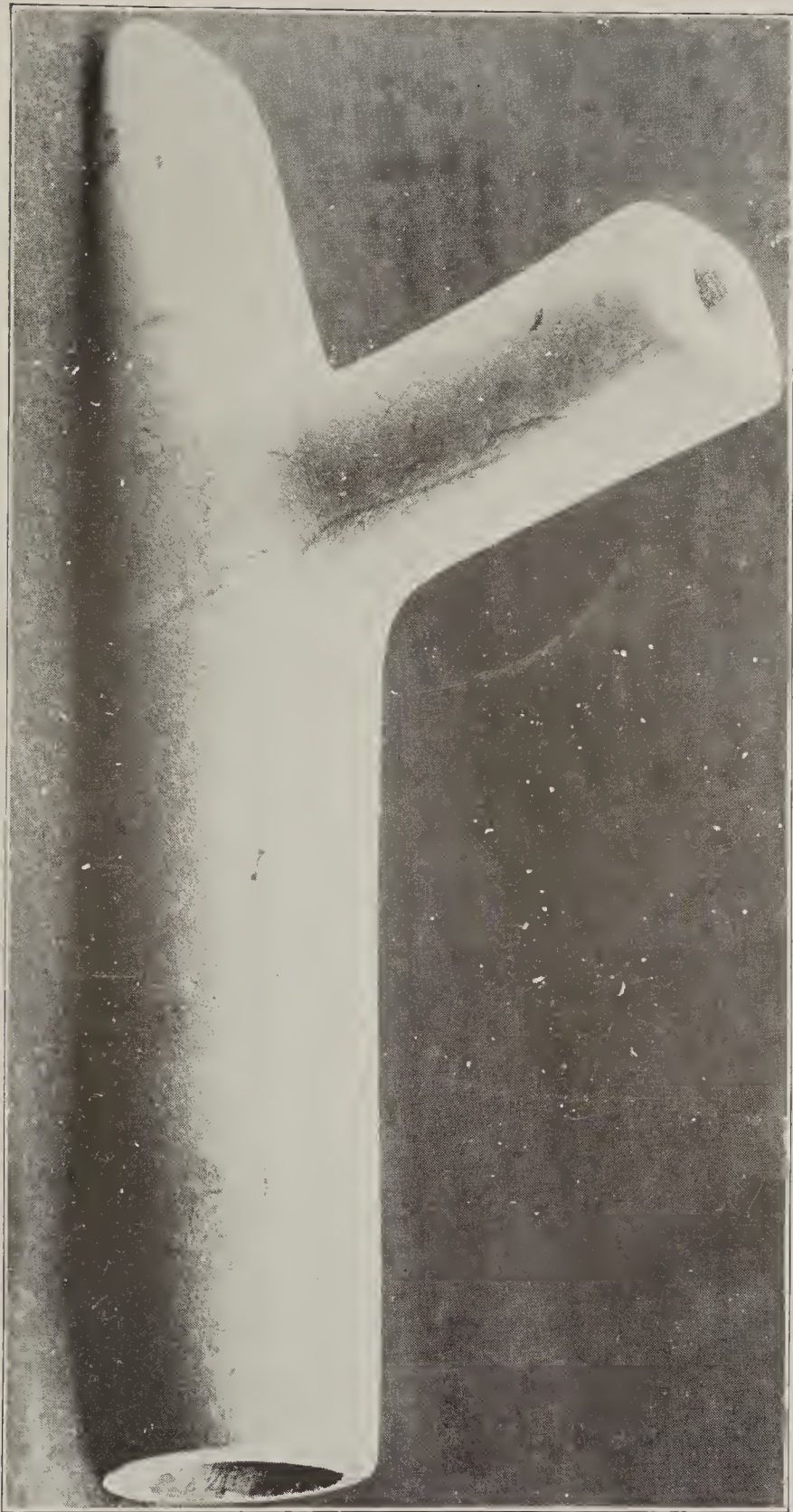


FIG. 89. Modified Tube Pipe. 3.

MISCELLANEOUS ARTIFACTS.

Associated with the pipes described were a number of very interesting ornaments made of stone, bone, copper and other materials. Of these the boat-shaped and cone-shaped objects of stone and copper are of particular interest.

BOAT SHAPED OBJECTS OF STONE.

The boat-stone shown in Fig. 90 is an effigy of the beaver in the act of swimming, showing only that portion of the animal

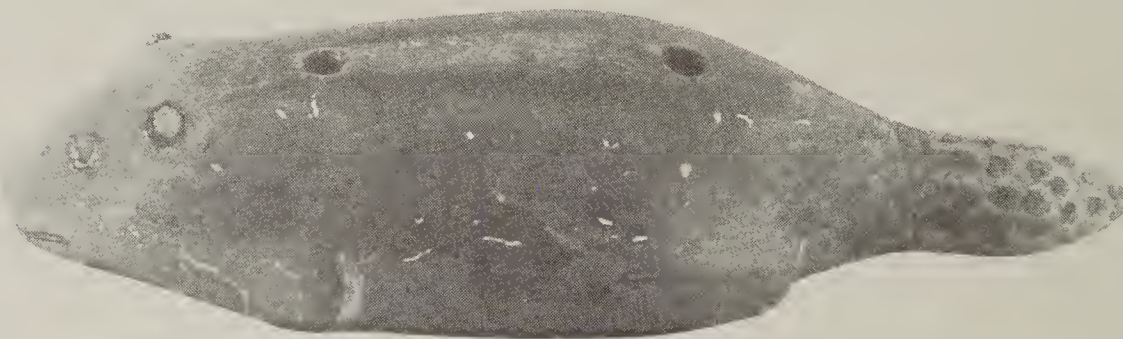


FIG. 90. Boat-Stone Made in the Image of the Beaver.

which would appear above the surface of the water. The head, with its small ears, the round stout body and flat well marked tail, are characteristic of the beaver.

Fig. 91 shows the underside of the specimen, somewhat resembling a canoe or boat, whence the name of the type.



FIG. 91. Boat-Stone. Reverse Side of the Beaver.

Fig. 92 shows an unusual boat-stone which resembles the shell of a beetle. Its upper, or convex surface, is divided into bi-lateral halves by a longitudinal groove running its entire length, while a transverse depression further separates it into halves, each of which resembles the posterior or winged portion of a



FIG. 92. Effigy Boat-Stone.

beetle. The raised portions corresponding to the wing shields are accentuated by a checkered pattern of incised criss-cross lines. The under side of the specimen is shown in Fig. 93 and is similar to the beaver boat-stone shown in Fig. 91 being pierced with two holes near the center.



FIG. 93. Reverse Side of Effigy Boat-Stone.

BOAT SHAPED OBJECTS OF COPPER.

Boat-shaped objects of copper are shown in Figs. 94 to 97, inclusive. Fig. 94 shows a very finely wrought specimen, pierced with a hole at each end. The edge at each side is turned under, forming a curved ridge.

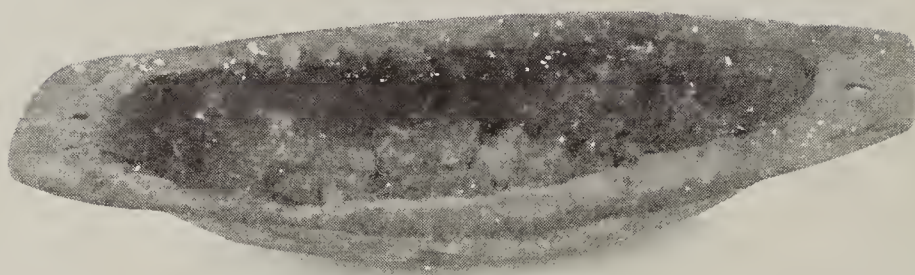


FIG. 94. Copper Boat-Stone.

Fig. 95 shows the opposite side of the above specimen, which contains a quantity of broken quartzite pebbles attached to it by corrosion of the copper.

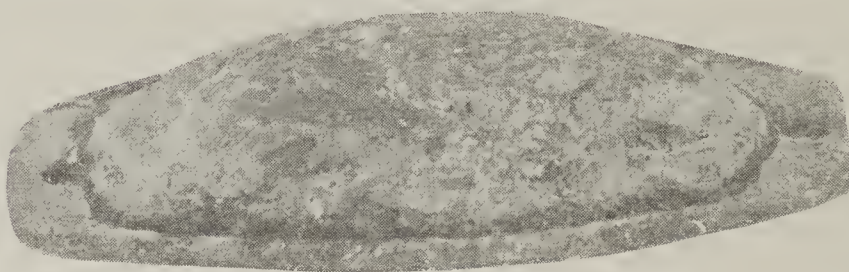


FIG. 95. Reverse Side of Copper Boat-Stone.

Fig. 96 shows another copper boat-shaped specimen, filled with round quartzite pebbles, white and pink in color. It will be noted that in the specimen just described the pebbles were broken, while in this one they are perfect, all uniformly rounded and about the size of small peas. The specimen is pierced with two holes near the center, similar to the boat-shaped objects of stone.

Fig. 97 shows another boat-shaped specimen, pierced with two holes near the center. No pebbles were found in this specimen, as it was placed in the cache upside down. No doubt originally its contents were similar to those of the two others, as the pebbles were found in abundance in the cache but no significance attached to them at the time.



FIG. 96. Copper Boat-Stone
Containing Pebbles.



FIG. 97. Copper Boat-Stone.

COPPER CONES.

Figs. 98 and 99 show two splendid specimens of copper cones, one and three-fourths inches in diameter.

That shown in Fig. 98 has the interior filled with pink and white pebbles similar to those found with the boat-shaped specimens. The second specimen, shown in Fig. 99, was up-side down in the cache, and if it originally contained pebbles, they were lost. So far as recorded the copper specimens containing

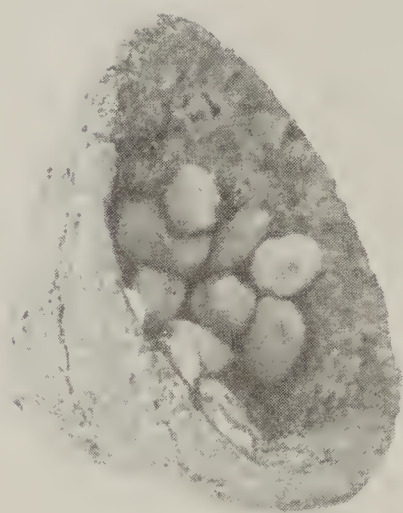


FIG. 98. Copper Cone.

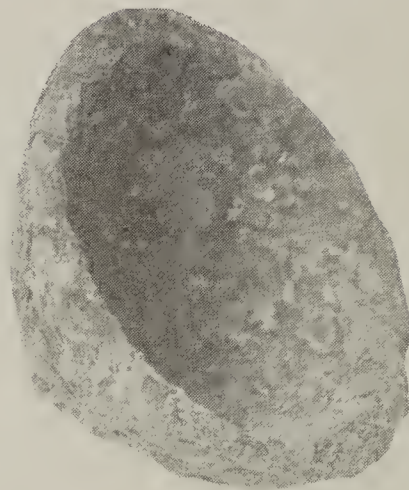


FIG. 99. Copper Cone.

small pebbles are the first taken from the mounds of the Scioto valley. Their use is more or less problematical, but they are usually conceded to have served as fetiches for promoting the personal welfare of the owner; as sacred objects, such as charms, talismans or amulets; or as mere ornaments.

REEL-SHAPED ORNAMENTS.

Another very interesting type of ornament taken from the cache are the reel-shaped objects made of stone and copper. These for the most part were closely associated; in fact, one of the stone reels was firmly attached to one of copper, by corrosion. The first one removed from the cache is shown in Fig. 100. It is made of slate of a reddish brown color, with bands of black. The ornament is three and three-fourths inches long by three inches wide, and is pierced with two holes. The arms of the reel are angularly cut, which is one of the characteristics of the reel-shaped ornaments found in Ohio. The specimen is very finely polished and symmetrically made.

Fig. 101 shows a reel-shaped ornament made of copper and in form almost the counterpart of Fig. 100. The specimen however is larger, measuring four and one-eighth inches wide and four inches long. It is pierced with two holes and the arms forming the reel are angularly cut.

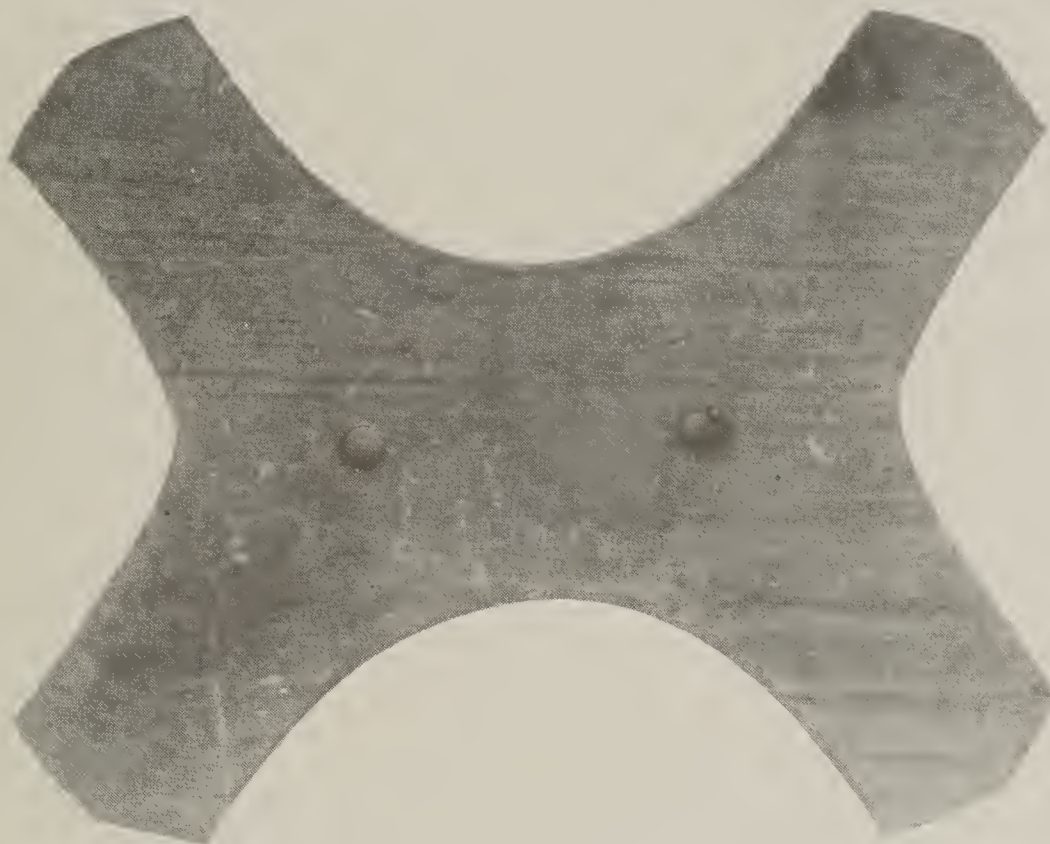


FIG. 100. Banded Slate Reel-Shaped Ornament.

Fig. 102 shows a splendid example of the reel-shaped ornament, made of banded slate. The specimen is coated with a deposit of iron and the banded effect not shown. In many respects this ornament is like Fig. 100, excepting that on one side and parallel with the perforations, there is a concave depression running the full length of the specimen. Length, three and one-fourth inches; width, two and seven-eighths inches.

A second reel-shaped ornament made of copper, is shown in Fig. 103, which in many respects resembles Fig. 101; however the terminations of the arms forming the reel are rounded instead of angular. The length of the ornament is three and one-half inches and the width three and seven-eighths inches.

The third reel-shaped ornament made of copper is shown in Fig. 104. It is much smaller than the two other copper specimens, being three inches long and two and seven-eighths inches wide. The arms forming the reel are short and the ends angularly cut,

while the perforations are wider apart than in the two others. Associated with and attached to this ornament was another, similar in many respects, made of alabaster.

Fig. 105 shows another reel-shaped ornament, made of banded slate. The specimen is greatly discolored by copper, as it was closely associated with the copper reel-shaped ornaments and other copper objects in the cache.

The reel-shaped specimens, both of stone and copper, no doubt were used purely for ornament and the limited area in Ohio in which this type has been found in mounds, would indicate that they were peculiar to certain tribes of the great Hopewell culture.



FIG. 101. Reel-Shaped Ornament Made of Copper.



FIG. 102. Reel-Shaped Ornament Made of Banded Slate.

In the Museum of the Society is a large cache of copper objects, representing copper plates, ear ornaments, bracelets, axes and reel-shaped ornaments, taken from an old village site of the Ft. Ancient culture at Ft. Ancient. All the artifacts were broken or hammered out of shape and deposited in this cache. Some of the plates, if straightened out would measure four by eight inches and all were objects that could be attributed to the Hopewell culture, altho found cached away in a Ft. Ancient culture village. This discovery would indicate a conflict between the two cultures, in which the objects in the cache doubtless were taken as a prize. After being carried by the Ft. Ancient warriors to their village the identity of the captured loot was destroyed and the broken objects hid away in the ground. Among the copper pieces, which number more than sixty, were two reel-shaped ornaments similar to the Tremper specimens but much larger.

In the Museum of the Society several splendid examples of

the reel-shaped ornaments may be found, all coming from Franklin county, Ohio. A reel-shaped ornament of copper taken from a mound at Newark, Ohio, is in the collection of Phillips Academy,* Andover, Massachusetts.

Mr. Clarence B. Moore† in his explorations along the Tennessee river, obtained nineteen of the reel-shaped ornaments. He was unable, however, to decide positively on what part of the body the ornaments were worn, they being found both on the chest and on the pelvis of the skeletons.



FIG. 103. Copper Reel-Shaped Ornament.

* Aboriginal Sites on Tennessee river; Moore, page 241.

† Aboriginal Sites on Tennessee river; Moore, page 246.

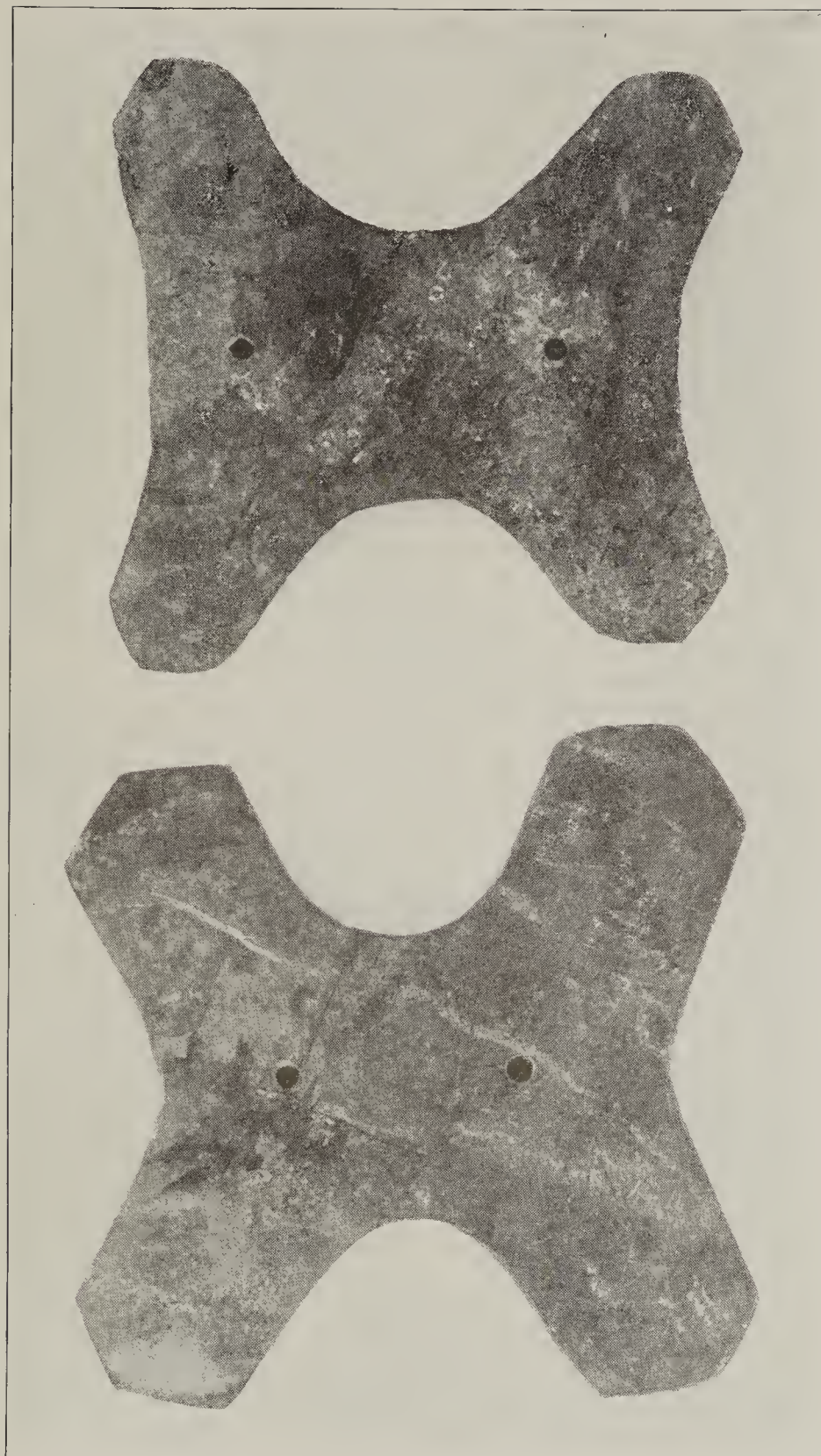


FIG. 104. Copper Reel-Shaped Ornament.

FIG. 105. Reel-Shaped Ornament of Banded Slate.

EAR ORNAMENTS OF COPPER.

Spool-shaped ear ornaments of copper generally are present in burials of the Hopewell culture and are perhaps more abundant than any other of the ornaments made of copper. The ear ornaments usually are made of two concavo-convex discs connected by a short hollow cylinder of the same metal, passing thru a hole in the center of each plate and there clinched. Those shown in Fig. 106 were taken from a grave below the surface of

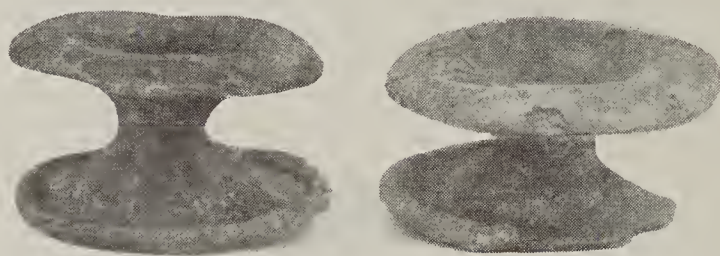


FIG. 106. Copper Ear Ornaments with Concavo-Convex Parts.

the Tremper mound. From this same grave was taken a second pair of ear ornaments, shown in Fig. 107, and differing to the extent of having one face perfectly flat, perhaps the first of this form taken from the mounds of the Scioto valley. At the

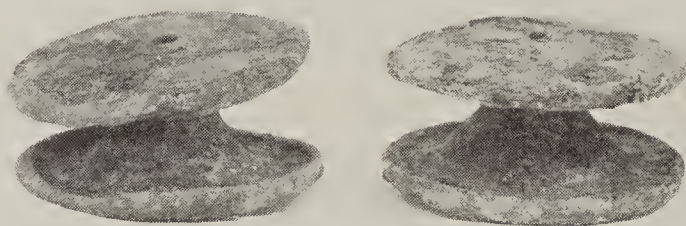


FIG. 107. Copper Ear Ornaments with One Part Flat.

Harness mound, thirty-seven miles north along the Scioto, more than fifty of these ornaments were found, all having the concavo-convex sides, as did those taken from the Seip mound, along Paint creek. Squier and Davis in their report upon the Mound City group make no record of finding the ear ornaments, altho the group is very similar to the Tremper mound.

EAR ORNAMENTS OF STONE.

An extremely rare and interesting type of ear ornament is that shown in Fig. 108. This type differs from the copper spool-shaped ear ornament, not only in material, but in form. The specimens shown in Fig. 108 are made from light red pipestone,

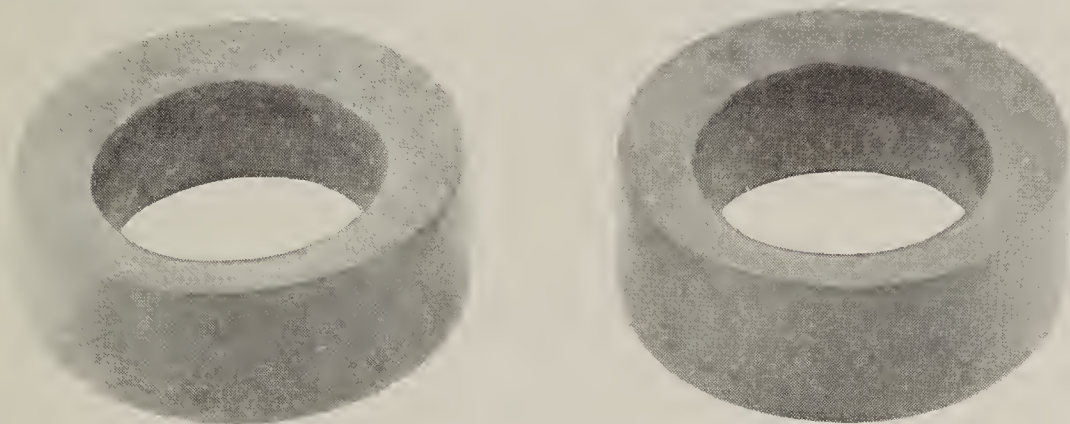


FIG. 108. Ear Ornaments Made of Red Pipestone.

very carefully finished and highly polished. Their shape might be compared to that of the modern napkin ring, and if a section five-eighths of an inch long was cut from a hollow cylinder or tube of stone, one and five-eighths inches in diameter with walls one-fourth of an inch thick, the result would be approximately that of the finished specimen shown; that is, a short tube. The only difference would be that in the specimen the circumference of the ring is concavo-convex, from without, and the rim at each end slightly concave toward the center.

A second pair of ear rings of this type is shown in Fig. 109.

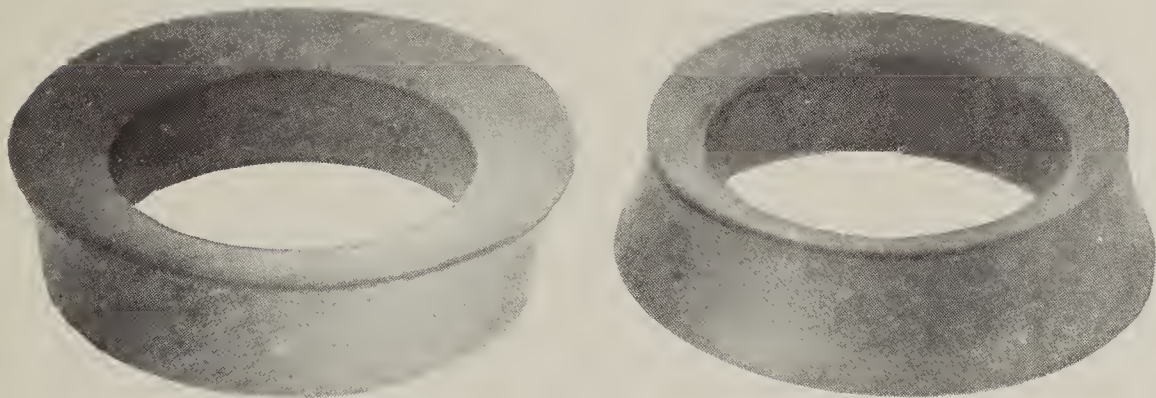


FIG. 109. Ear Ornaments Made of Ohio Black Slate.

They differ from the preceding specimens in being made from Ohio black shale, highly polished and with the exception of one end, in being shaped like the simple section of a hollow cylinder. The other end is fashioned similarly to Fig. 108, giving it the appearance of having a ridge or extended margin around the rim. The measurements of this pair of ear ornaments are: length five-eighths of an inch; diameter across ends, one and seven-eighths inches and two and one-eighth inches respectively; diameter of opening, one and three eighths inches.

This type of ear ornament has been found only in a few instances in the mounds of the Scioto valley. Squier and Davis make no mention of it in connection with the exploration of the Mound City group, but Professor Moorehead reports the finding of several specimens in the Hopewell group, Ross county.

CONE-SHAPED OBJECTS.

Cones made of several kinds of stone were found in the cache, the most interesting of which are those made of hyaline quartz, and shown in Fig. 110. The largest of these has a base diameter of two and three-fourths inches and a height of one and one-eighth inches, which would require for its making a crystal with a diameter of not less than two and one-half inches. This specimen is a truncated cone, has almost a perfectly circular base and is one-half inch in diameter at the top.

The second cone is made more after the fashion of the familiar hemisphere of hematite. It is finely cut, tho this is not apparent in the figure. The greatest diameter of the specimen is one and seven-eighths inches and the height one and one-fourth inches, requiring the crystal from which it was cut to be at least two and one-fourth inches in diameter. Hyaline quartz seems to have been highly prized by the various tribes of the Hopewell culture. Squier and Davis found large numbers of broken arrow and spear points made of quartz in mound No. 3 of the Mound City group. A foot-note on page 421 of "Flint Chips," catalog of the Blackmore Museum, Salisbury, England, states that "judging from the quantity of fragments, nearly a hundred arrowheads of hyaline quartz must have been

originally deposited on the altar," referring to mound No. 3 of the Mound City group.

However, as far as we know, the cones shown in Fig. 110 are the only ones made from hyaline quartz found in the Scioto valley. To cut into form a crystal having the highest degree of hardness of any rock known to him, is a good example of the skill and patience of primitive man.

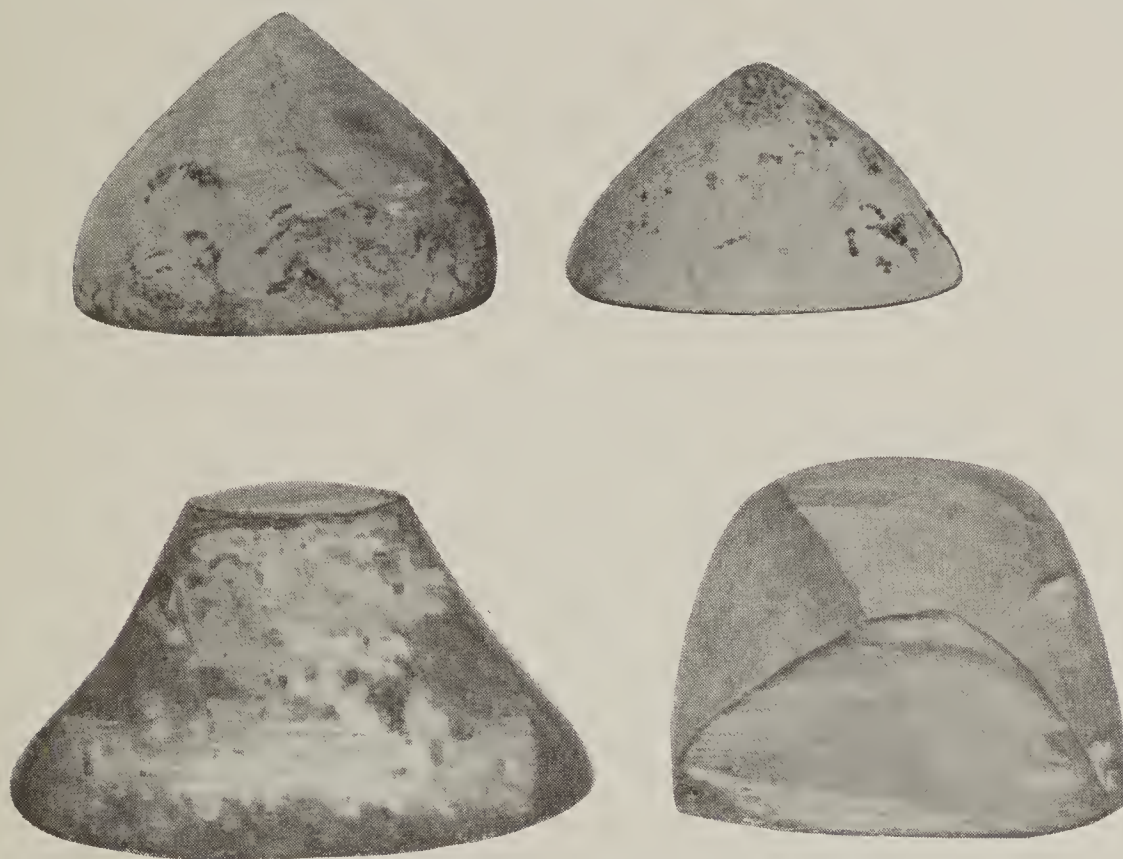


FIG. 110. Cone-Shaped Objects of Hyaline Quartz.

Quite a number of cones made of galenite were found in the cache. These varied in diameter from one and one-half inches to two inches, with a height of three-fourths of an inch to one inch, and were perfectly conical in shape. Two of these are shown at the top in Fig. 110.

Another form, made like the hematite hemispheres so commonly met with, was found in the cache. The specimen was made of Ohio black shale, and covered with a thin deposit of iron.

STONE PLATE.

In the center of the great cache was found a large stone plate, Fig. 111, made of a fine-grained sandstone, eleven and one-half inches in diameter, one-half inch thick and ground

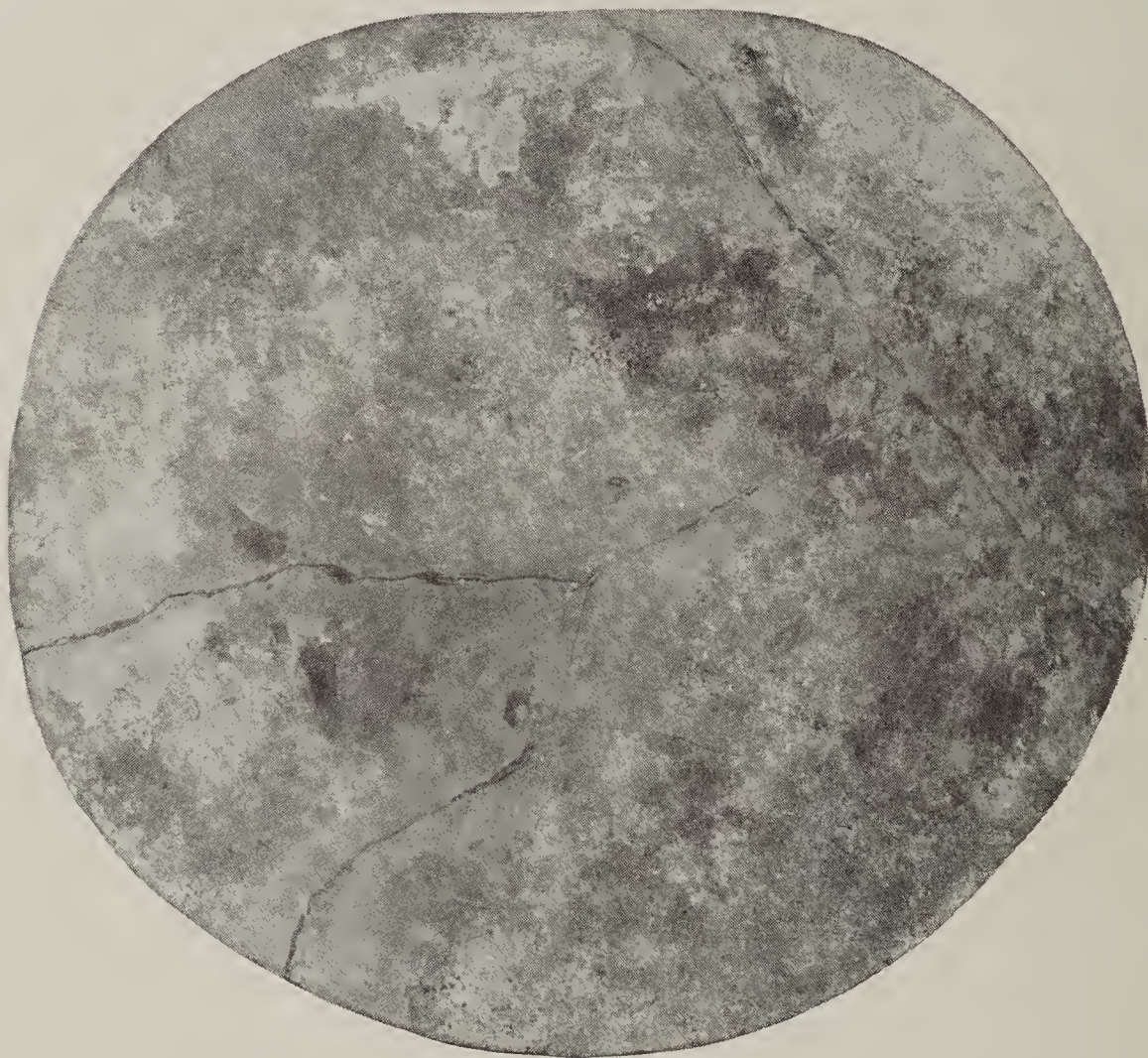


FIG. 111. Large Stone Plate.

perfectly smooth on both sides. The plate is stained by contact with copper ornaments placed in the cache, as shown by the light places on its surface. The darker stains shown are due to a finely pulverized charcoal, which seems to have been ground upon the plate. From the appearance of one side I am inclined

to believe that this stone disc was used in the grinding of pigments, as we found a number of indications of the use of red pigments; for instance on one of the effigy pipes, the sandhill crane has its head painted red, the color being well preserved. The plate was broken into four pieces, apparently the result of two distinct and intentional blows. The parts were readily reunited as shown in the cut.

PAINT CUP.

Near the plate was a paint cup, shown in Fig. 112, more than half filled with red paint. The paint cup is made of a

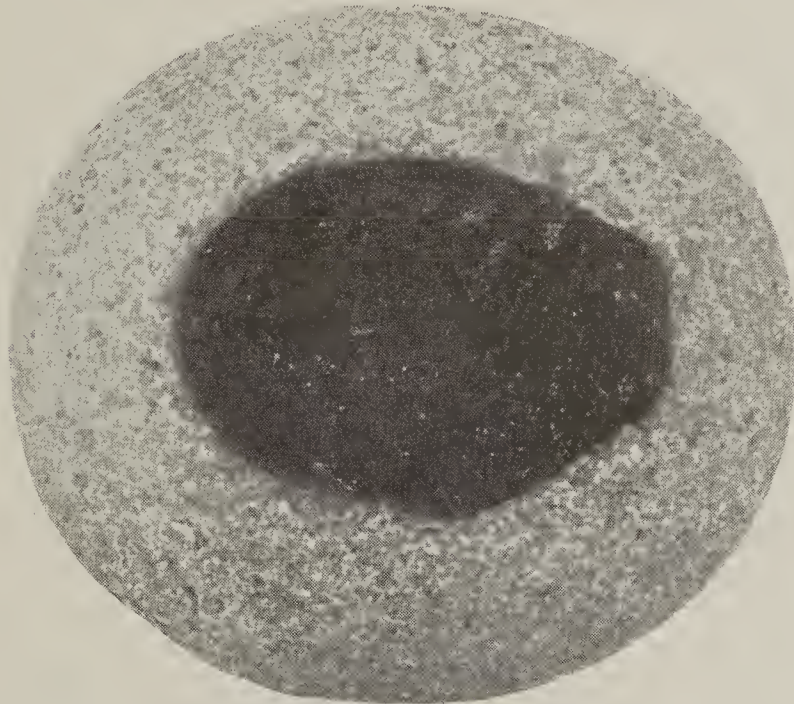


FIG. 112. Paint Cup Containing Red Paint.

coarse-grained sandstone, is oval in form, three and one-eighth inches in its longest diameter and one and one-half inches in thickness. The opening at the top is not quite one and one-half inches in its shortest diameter, but is enlarged until it reaches its greatest depth of three-fourths of an inch, where the diameter is about two and one-fourth inches. The cup beneath is rounded after the fashion of the burned clay pottery vessels.

PIERCED TABLETS.

Pierced tablets were present in the cache in large numbers. Many of these, made of Ohio black shale, were so disintegrated that upon removal they fell to pieces. Some however, made from this material, remained intact. Other tablets in the cache were made of laurentian slate, which did not deteriorate and tho many of them were broken they were readily restored.

The pierced tablet shown in Fig. 113 is of special interest because of the finely engraved face. This face is strongly convex, while the reverse is perfectly flat and plain. The specimen is pierced at each end with a small hole. The designs on the



FIG. 113. Decorated Pierced Tablet Made of Black Shale.

face are conventional and consist of a four-lobed figure, one and one-half inches in diameter, and four smaller figures, shaped like the figure 9. The five figures are regularly grouped, covering the the surface of the tablet to within one-half inch of each end. All are decorated with criss-cross lines. The small figure does not seem to be a chance one with the Tremper mound peoples, for a like design cut in copper was found at the Hopewell mound by Prof. Moorehead.* The design cut on the platform pipe, Fig. 83, is similar to that of the tablet.

Fig. 114 shows a pierced tablet made of shale, with streaks of harder shale running through it. The under side of the specimen is flat and the face side extremely convex. The tablet,

* *The Antiquarian*; Vol. 1, page 242.

which is pierced with two holes, one-half inch apart, is one and three-eighths inches wide in the center, gradually tapering to the ends, where it is less than one-fourth of an inch wide.

Fig. 115 shows the commonest form of pierced tablet found, as fifteen specimens of this type were taken from the large cache,

FIG. 115. Pierced Tablet with Expanded Center.

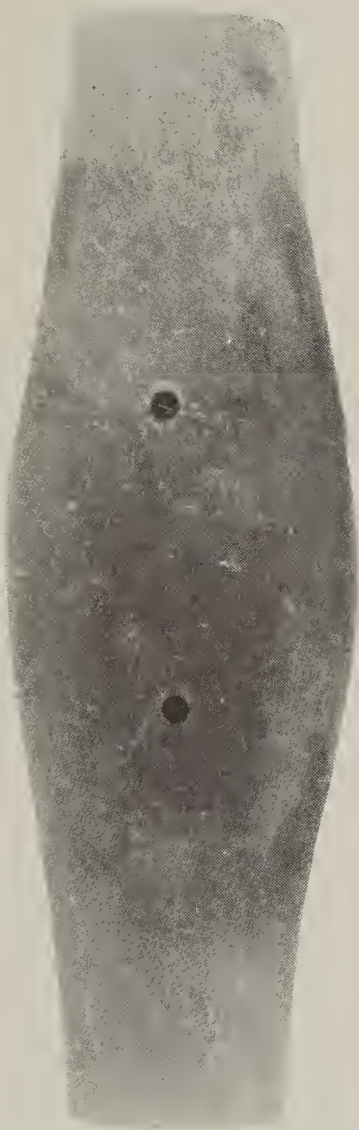


FIG. 114. Pierced Tablet Made of Black Shale.



either perfect or fragmentary. They were all made of Ohio black shale. The specimen shown in Fig. 115 is a typical one, some being a little smaller, others much larger. The specimen measures four and three-eighths inches long, one and three-

eighths inches wide in the center, gradually tapering on both sides to the ends, which are a little over three-fourths of an inch wide. The bottom of the tablet is perfectly flat and the face is strongly convex, pierced with two holes about one and one-fourth inches apart.



FIG. 116. Pierced Tablet with Expanded Center and Ends.

Fig. 117 shows three very beautiful pierced tablets, made of laurentian slate. Tablet No. 1 is three and one-half inches long, one inch wide, flat on one side and strongly convex on the other. It is pierced with two holes, one of which is one-fourth of an inch in diameter, and is decorated on each edge with five deep

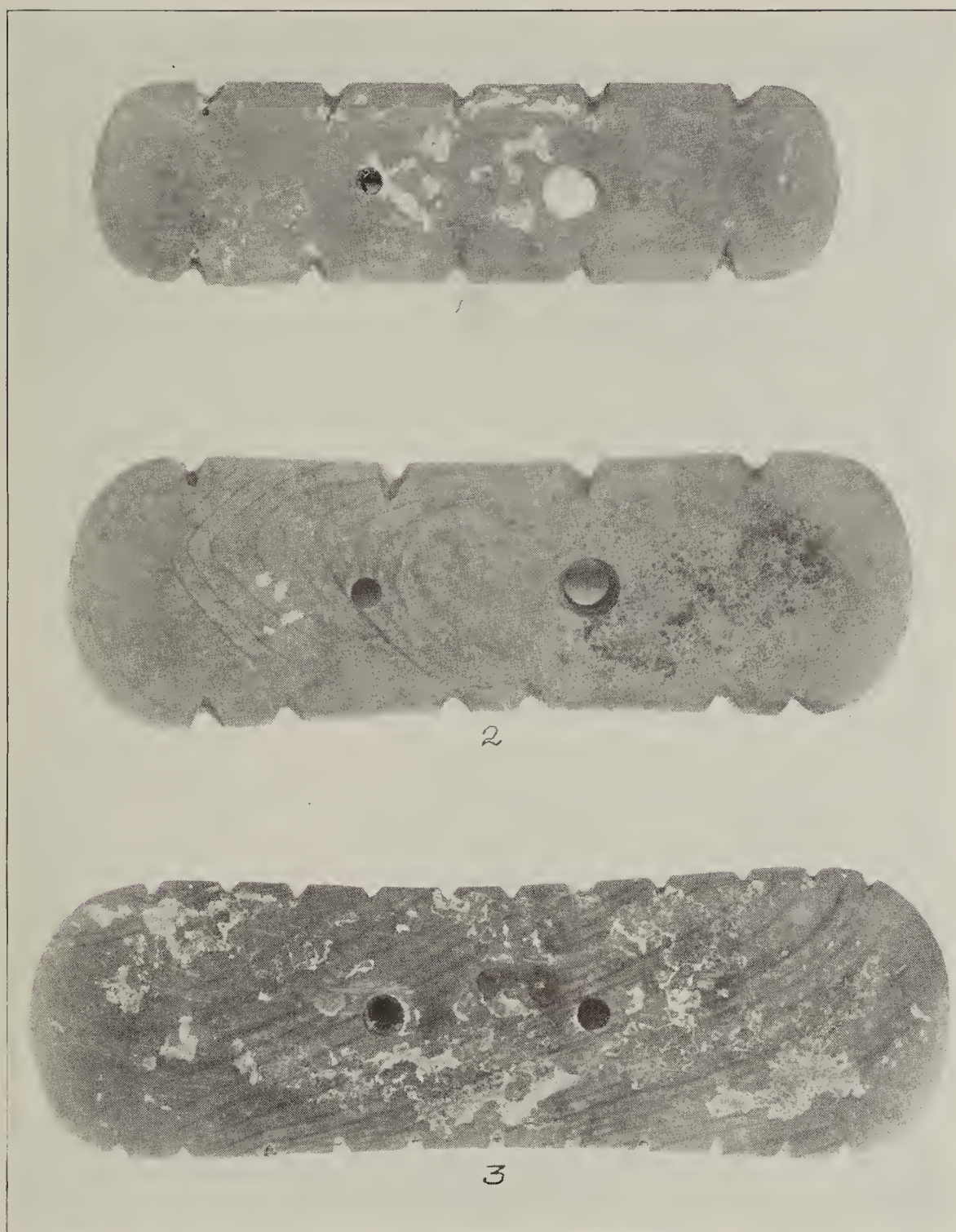


FIG. 117. Pierced Tablets Made of Laurentian Slate.

notches. The ends are oval, as are those of the two others of this type. No. 2 of Fig. 117 is larger than No. 1, but is of the same general form. The specimen measures four inches long, one and one-fourth inches wide; the decorations of the edges differ, one having four notches and the other six, but in pairs. No. 3, of Fig. 117, is the largest of this class of pierced tablets found in the mound. The specimen is about four and one-half inches long and a little over one and one-half inches wide at the center, gradually enlarging to the ends. The decoration consists of eleven notches on each edge.

Fig. 118 shows a very unusual type of pierced tablet. The specimen measures five inches in length and one and one-fourth inches wide at the center, gradually tapering and terminating in expanded ends, having much the same shape as the barbed scrapers made of flint. The tablet is flat beneath and convex on top and is pierced with two holes.

Fig. 119 is a splendid example of the diamond-shaped pierced tablets. The specimen is four inches long and almost two and one-fourth inches wide. It is flat on the bottom, the face strongly convex, and is pierced with two holes.

Fig. 120 shows four types of pierced tablets made of bone. No. 1, the most common of the four, is three inches in length and one inch wide at the center. One edge is practically straight, while the other is convex.

The tablet is pierced with a hole at each end, and has two holes near the edge on the curved side. Many tablets like No. 1 were taken from the cache in a more or less imperfect state, many of them having been badly burned when the structure was destroyed.

No. 2 of Fig. 120 shows another type of pierced tablet, made of bone, somewhat larger than No. 1 and having the edges equal, both being convex. The end holes in this specimen are quite large. Ten or more of this type were secured, mostly in an imperfect state of preservation.

No. 3 of Fig. 120 shows another bone tablet, in many respects similar to No. 1. The specimen is three and three-fourths inches long, one inch wide in the center, has one straight edge, while the other is strongly convex. The tablet is pierced with a

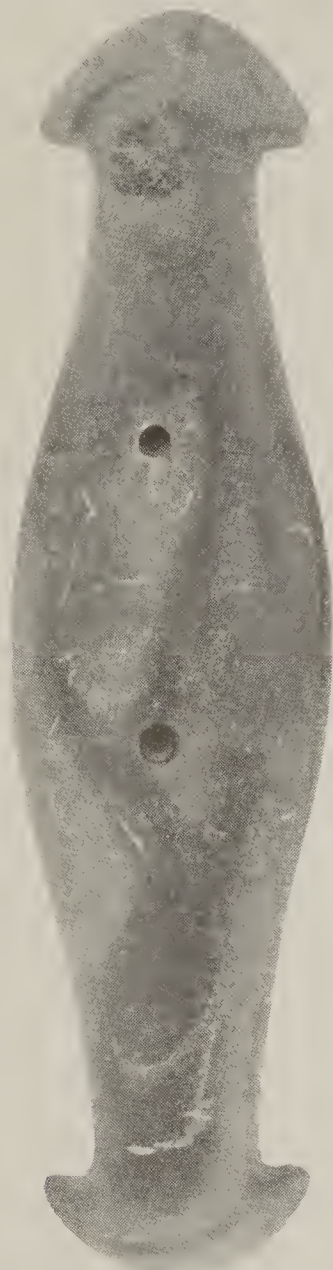


FIG. 118. Pierced Tablet Made of Laurentian Slate.

hole at each end. Only a few specimens of this type were secured.

No. 4 of Fig. 120 shows a pierced bone tablet made in the effigy of a bear canine. The specimen is four and one-fourth inches long and one and three-eighths inches wide near the center. It is made from deer antler, and is fully one-half inch

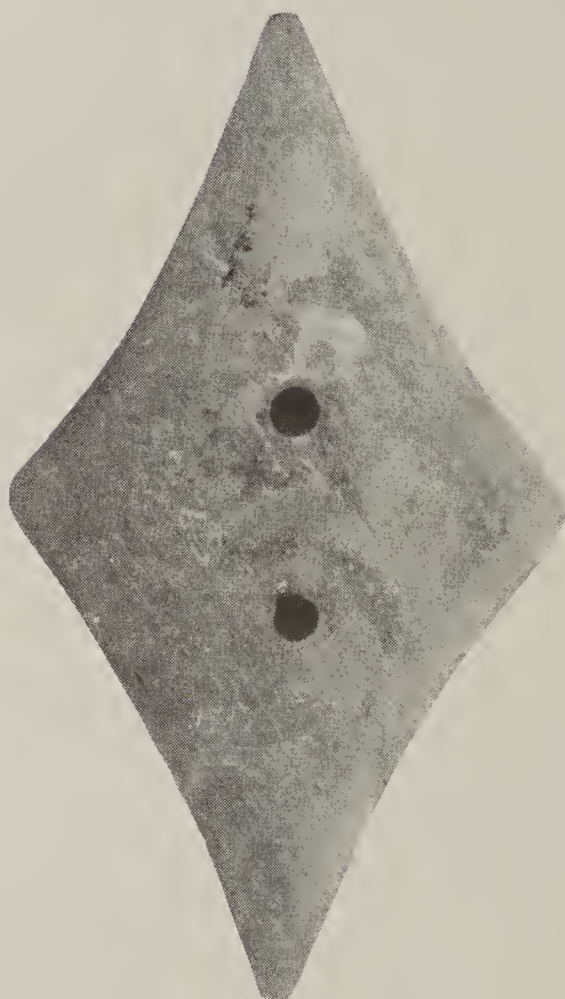


FIG. 119. Pierced Tablet, Diamond Shaped.

in thickness, flat on the under side and strongly convex above. It is pierced with two holes one inch apart.

Many artifacts made of bone were placed in the cache, but being exposed to the fire of the burning timbers when the structure was destroyed, suffered almost complete destruction. Hundreds of broken pieces of cut lower jaws of the bear, mountain lion, wild cat and even of man were found, which had been deposited with implements and ornaments made of wood, as shown by the charred remains. Associated with the wood and bone artifacts were remnants of woven fabrics, made of bast fiber, which added to the combustible material piled together, so that all were burned beyond possibility of being restored.



FIG. 120. Pierced Tablets Made of Bone.

OBJECTS OF MICA.

Large pieces of mica in blocks a quarter of an inch in thickness and from eight to ten inches in diameter were found in the cache. Mica no doubt was highly prized by the Tremper mound peoples for making ornaments, as almost every part of the floor yielded uncut pieces.

In one of the rooms of the sacred building, designated as 25 on the map showing the "Plan of the Tremper mound," Fig. 3, the floor was practically covered with small to very large pieces of mica. Some of these were simply refuse pieces while others show designs partly cut, but rejected for some reason. Other pieces of the mica had been subjected to fire, destroying their resiliency, making the thin sheets of the mineral as soft and pliable as tin foil.

At the Harness mound, along the Scioto river, less than forty miles directly north, imitation pearls were found which were made by covering burned clay beads with the pliable mica, which gave them a close resemblance to genuine pearls. Designs cut in mica, especially of the conventional form, were not plentiful in the Tremper mound, altho its builders had an abundance of mica. However, the crescent form was found in some numbers in one of the graves below the floor of the mound. The crescents were eight in number, about one inch wide in the center and gradually tapering to the ends, which were cut round. The crescents varied in length from seven inches to ten inches.

Associated with them in the same grave was found a large bear effigy cut from mica, which is shown in Fig. 121. The specimen is a little over six inches long and four and one-fourth inches wide at the widest part. The effigy is an example of the ability of the primitive artist to express action in his handiwork.

GALENA CRYSTALS.

Crystals of galena (lead ore) were found sparingly in the cache, but large crystals were found in the mound at several points above the floor.



FIG. 121. Effigy of the Bear, Made of Mica.

CHIPPED FLINT OBJECTS.

The chipped flint objects found were characteristic of the culture and consisted of arrow-heads, spear-heads, flaked knives, etc. The flaked knives were found in goodly numbers in the cache, but many of them were destroyed by fire. The effect of fire on flint is shown in the two specimens to the left, in Fig. 122.



FIG. 122. Flint Knives and Gravers.

Flint knives no doubt were used by the primitive artists in fashioning the admirably sculptured animal and bird pipes found in the mound. The broken finely chipped implement on the extreme right in Fig. 122, perhaps was used by the sculptor as a graving tool. Several fragments of these highly specialized implements were found in the cache.

Fig. 123 shows a chipped ceremonial spear made of light gray flint, six inches in length and one and three-fourths inches wide. The chipping is well done and one side near the point is slightly curved, not unlike those found by Professor Moorehead at the Hopewell group. Upon the floor of the mound, near the center, was found a quantity of flint spalls, many of them two



FIG. 123. Ceremonial Spear.

inches in diameter, and numbering more than five hundred pieces. Perhaps these had been stored for use by the sculptors.

MEALING STONES.

Among the many interesting specimens found in the large cache are six mealing stones, which were piled together to one side of the deposit. Three of these are almost spherical boulders of granite, well ground and polished and ranging in diameter from four inches to eight inches, the largest weighing more than twenty-five pounds. Two of the mealing stones were common granite boulders, flattened on one side with rounded ends. A perfect bell-shaped pestle, with a base diameter of three and one-half inches and a height of five and one-half inches, was among the mealing stones. Mealing stones of any kind are rarely met with in the mounds of Ohio. Professor Moorehead found a large stone mortar or bowl in the Hopewell mounds* and claims that nothing like it ever has been discovered in our Ohio valley mounds.

POTTERY.

The use of pottery by the Tremper mound peoples is certain, as many fragments were found on the floor of the mound. At several points the parts of entire vessels were found, but up to the present these have not been restored. For the most part the pieces secured were not representative of the highest development of the ceramic art known to this culture. Squier & Davis in their explorations of the Mound City group found in Mound No. 3 large quantities of broken vessels, from which several almost perfect restorations were made. One of these,† as shown in their report is a very beautiful specimen and has been considered representative of the highest type of fictile art taken from the mounds of Ohio. An examination of the engraving by Squier & Davis would convince one that its maker possessed not only experience and skill, but also unlimited patience. However, I gather from reading the description of their finds in the Mound

* The Antiquarian; Vol. 1, page 212.

† Ancient Monuments of the Mississippi Valley; Squier & Davis; Plat 46.

City group, that broken parts of other vessels were found having no designs. At the Tremper mound only a few pieces of the pottery showed design or decoration, the majority of the vessels represented being of the plain type.

TEXTILES.

An important industry of the builders of the Tremper mound was the weaving of fabrics. This is shown by the finding of charred remains of primitive textiles, upon the floor of certain small inclosures on each side of the center of the mound. These rooms may have been the sleeping apartments of the keepers of the sacred building. The floors of several of these rooms were covered with carbonaceous matter, several inches in thickness, consisting of straw, leaves, bark and woven fabrics.

The woven fabric shown in No. 1 of Fig 124 has both the warp and woof made from bast fiber.

No. 2 of Fig. 124 shows another weave, of which a number of fine examples were secured.

No. 4 of Fig. 124 shows the finest fabric secured in the mound. The woof and warp both are made of a very fine thread, and the fabric is a splendid example of primitive weaving.

No. 3 of Fig. 124 seems to be material prepared for making baskets, although no remains of baskets were found.

Fig. 125 shows a very good example of a coarse weave, and may have been used as bedding, as quantities of this weave appeared on the floor of the small rooms.

OBJECTS MADE OF WOOD.

A regrettable feature of the burning down of the structure covered by the Tremper mound, and one always present in the mounds of this culture, was the destruction of articles made from wood and other combustible materials. Throughout the great cache were to be seen what must have been very interesting objects of wood, but which had been almost entirely consumed, leaving only the charred remains, which quickly became nothing more than dust.

In one instance however, great care resulted in our being

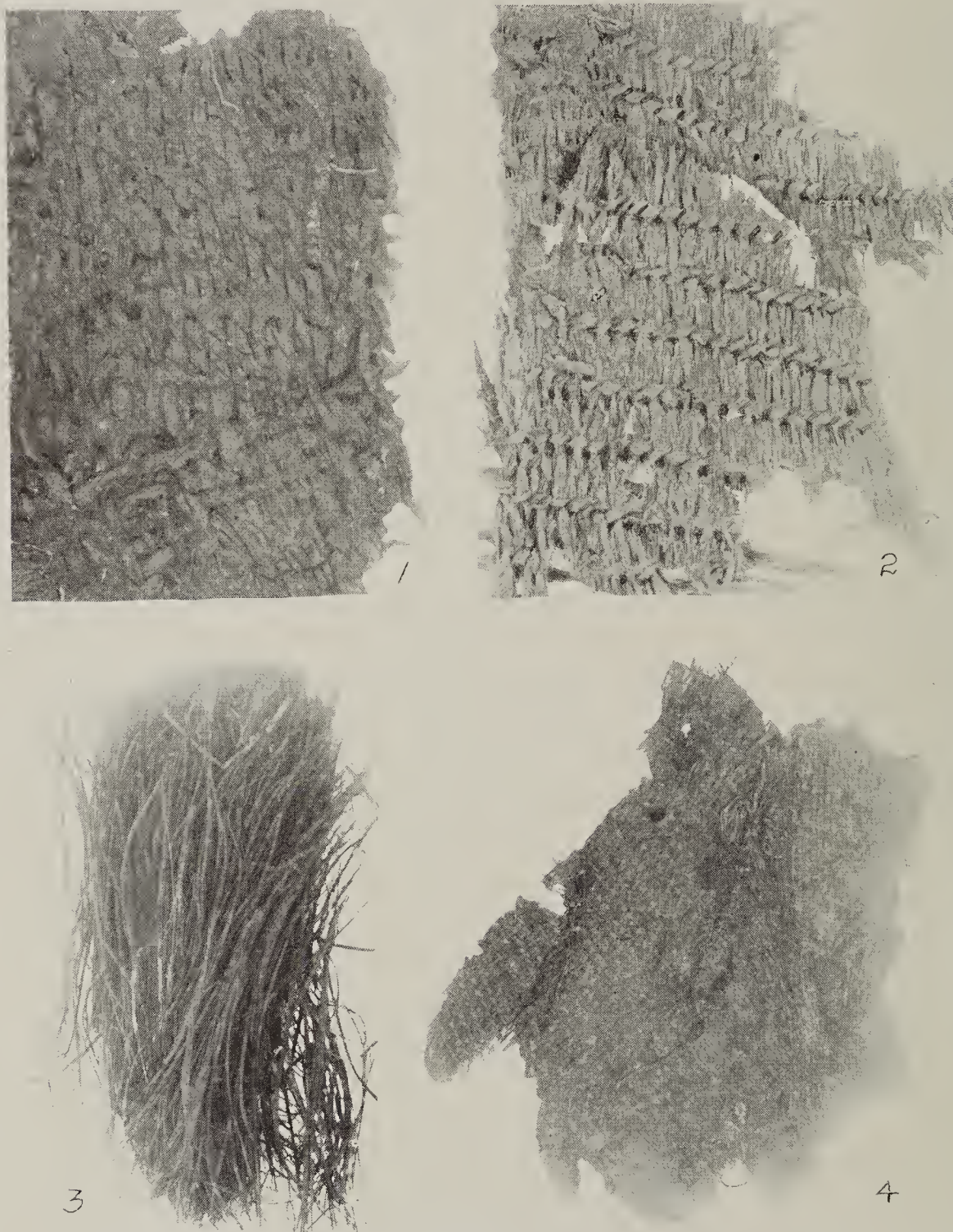


FIG. 124. Woven Fabrics.



FIG. 125. Woven Fabric.

able fully to observe and in part to remove and preserve, one of the more interesting of these perishable objects. This was what might be considered as a ceremonial bundle, suggesting in its purpose similar bundles used by very many of the historic tribes, particularly thruout the far west and southwest. This bundle consisted primarily of three lengths or sections of the southern bamboo, about twelve inches long, carefully wrapped together in several yards of a woven mat-like fabric. Scattered over the fabric and no doubt originally attached thereto, were numerous very small copper beads, which owing to their diminutive size were so badly corroded from oxidation and heat action as to be mere green spots of salts of copper.

RESUME.

A brief resume of the exploration of the Tremper mound shows the following outstanding features, which, it is believed, add materially to the fund of information concerning the great Hopewell culture of prehistoric inhabitants of Ohio, and which, it is hoped, will prove to be an important chapter in the history of the aboriginal peoples of the Ohio valley:

The mound marks the site of a sacred structure, wherein its builders cremated their dead, deposited the ashes in communal receptacles, made similar disposition of the personal artifacts of the dead, and observed the intricate ceremonies incident to funereal rites.

The builders of the Tremper mound had arrived at a cultural stage where united or communal effort in great part replaced individual endeavor, and in so doing had reached a plane of efficiency probably not equalled by any other people in the stone age period of its development. This fact is attested most strongly by their burial customs, in which by the use of communal depositories for cremated remains and personal artifacts, they effected a plan for the disposal of the dead unhampered by the limitations of the Seip mound and Harness mound plans, the next highest noted in the Ohio mounds. In these latter mounds, individual graves soon exhausted the available floor space, while in the Tremper mound plan, burial was limited only by the size of the

communal depositories, the number of which, moreover, easily could be increased if needed.

The high development of sculptural art by the builders of the Tremper mound is a most striking feature of their versatility. While artistic achievement is not always an index to the culture status of a people, the fact that in this respect they probably surpassed any other strictly stone age people, is significant, and taken together with other pertinent facts, places them very well along toward the upper stages of barbarism, with civilization waiting but a short distance away. The great number of admirably executed carvings of birds, animals and other life forms, taken from the mound, many of which would be worthy the efforts of the modern workman, cannot but excite wonderment and admiration for the primitive artists of prehistoric Ohio.

The finding of large fireplaces, showing evidences of very long-continued use and significantly located with respect to the communal deposits of ashes and artifacts, seems to indicate the use of sacred fires, so important an adjunct of ceremonial and religious observances among the early peoples of the old world. The great depth to which the earth below these fireplaces was burned suggests that they were kept perpetually burning, while the charred contents indicate that the fires were extinguished only when the earth composing the mound was heaped over them.

Of scarcely less importance than the exploration of the Tremper mound, *per se*, is the light it sheds on the Great Mound City group, of northern Ross county. Owing to the methods employed by Squier and Davis in examining the mounds of this group, in 1846, their character and purpose have remained until now matters of surmise. The plan employed by these early explorers was the sinking of shafts into the tops of the mounds, and from the limited area of a mound and its base thus exposed, to draw conclusions as to its character as a whole. In this way, mound No. 8, of the group, from which was taken a great cache of pipes and other objects very similar to the Tremper mound cache, was described by them as covering a great sacrificial altar, on which had been kindled intense fires, resulting in the breaking up of the specimens deposited thereon.

The conditions found in Mound No. 8 were exactly dup-

licated in the Tremper mound, but the complete examination of the latter showed that the conclusions drawn from the partial exploration by Squier and Davis were not warranted; in short, it is strikingly evident that the two mounds in their character and purpose were entirely similar, and that their builders were closely related. So similar indeed are the mounds and their contents, that it would not be surprising to find, if not already proven, that the builders of the Mound City group migrated southward through the Scioto valley, and constructed the Tremper mound and earthwork. Thus are forged several important links in the chain of evidence as to the existence and career of this most advanced of stone age peoples. We find them extending from Mound City, where their skill as builders and artists has been the wonder and admiration of archæologists, southward to the Ohio river, where at the Tremper mound site, they reached the highest point of their development so far noted.

The life story of this people, as told in the Tremper mound, certainly is one of the highly interesting chapters in the history of primitive civilization. No primitive people has shown such skill and perseverance in wresting from nature the raw materials needed for their purposes, nor such versatility in fashioning these materials into finished products. The most striking phase of this perhaps, is the manner in which with only the simplest of tools, the stone for their making was quarried from the hills and the realistic portrayals of bird and animal life, sculptured in full relief and finished in minutest detail, were effected. In the record preserved in the mound we find a vivid picture of the strength and persistence of the forces underlying human development, and urging it against all odds, toward a higher plane of development.

Ohio State Archaeological and Historical Society

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